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REGULATIONS PRESCRIBING STANDARD FOR

FIELD FIRING

AND THE

PROFICIENCY TEST

UNITED STATES ARMY

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1911

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WAR DEPARTMENT,
OFFICE OF THE CHIEF OF STAFF,
Washington, March 15, 1911.

This pamphlet, entitled "Judging the Results of Field-Firing Exercises, including Method of Arriving at Standard of Proficiency in the Annual Proficiency Test," prepared at the School of Musketry, Presidio of Monterey, California, is published for the information and guidance of the United States Army, for use in field firing and the proficiency test provided for in the Small Arms Firing Manual.

By order of the Secretary of War:

LEONARD WOOD,
Major General, Chief of Staff.

JUDGING THE RESULTS OF FIELD-FIRING EXERCISES,

INCLUDING

Method of Arriving at Standard of Proficiency in the Annual Proficiency Test.

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1. Field-firing exercises are usually arranged as tactical schemes representing a fraction or episode of a combat, and hence should be judged from two standpoints. They are judged in the first instance by the tactician, who has in view the adequacy of the reconnaissance, the dispositions made as a result of the reconnaissance, and the promptness with which they are conceived and executed; the use of cover, the maintenance of fire discipline, fire control, and fire direction; and, in general, whether or not the execution of the exercise was in conformity with the tactical idea involved. In the second instance they are judged by the ballistician, who determines what result in hits and distribution *should* have been obtained under the circumstances. He then counts the hits and figures hit, makes note of the time consumed in firing, and compares these results with what they should have been, and, should this comparison prove unfavorable, he seeks for the cause of failure.

THE STANDARD OF COMPARISON AND INFLUENCES MODIFYING IT.

2. Owing to different well-known causes, the variations in the trajectory are such that in a series of shots fired at a target no two shots will strike in the same spot, the hits being arranged in a certain diagram called the "shot group," the size of which varies with the skill of those firing. Good shots will make a small group and poor shots a large one. A computation of the hits to be expected from riflemen of a given class is based upon the science of probabilities, which teaches that the distribution of shots in the

diagram of hits, apparently regardless of any rule, is in fact in conformity to a law which does not exhibit itself until after the delivery of a large number of shots.

3. If, therefore, the dimensions of the shot group pertaining to riflemen of a certain class or grade are measured for the different ranges, a large number of hits being considered, the mean dispersion or measure of the strip containing the best 50 per cent of the hits will provide a basis for computing the probable number of hits to be expected from shots of this class at any range at targets of a given size.

4. Through an extended series of firings at the Musketry School measures have been found for the dispersions of *good* shots and *average* shots from 200 to 1,000 yards, inclusive, and these are shown in Table I. Good shots are taken as including experts and sharpshooters in the proportion of 1 to 4, and average shots as including shots of all grades as these are found in an average well-instructed command.

5. For use in connection with Table I, a table of probability factors is given under the heading "Table II," and a statement of dimensions and vulnerable areas of the various types of field targets is given under Table III. The dispersions set forth in the tables are those obtained on targets selected for their visibility. In addition to this the ranges were accurately known and the firing was conducted under circumstances tending to give somewhat better shot groups than those which would be obtained either in field firing or in service firing. In all the firings upon the results of which Table I is based the aiming point used was the lowest point of the vertical diameter of the bull's-eye, and the assumption is made that in field firing or in service firing the aiming point will be the middle point of the bottom line of the figure, or otherwise the lowest element of the objective selected as an aiming point. The experimental firing at the School of Musketry indicates that the average battle sight corresponds to a sight setting of 436 yards. This firing also indicated that the average reading on the leaf sight was approximately 50 yards short of the actual range. The mean

temperature at the School of Musketry is about 60° F. and the target range is about 400 feet above sea level. Where other conditions prevail, these results will of course be modified. In the appended tables of percentages of hits to be expected at various ranges, those which are computed for misplaced centers of impact due to aiming at the bottom of the figure are based upon the above consideration—i. e., that the battle sight corresponds to a range of 436 yards, and that the leaf sight, if set at a reading corresponding exactly with the range, will place the center of impact about 50 yards short of the aiming point.

6. *Examples of use of tables.*—What percentage of hits would be obtained by "average" shots on a wall 5 feet high and 3 feet wide at a range of 1,000 yards with the correct elevation? From Table I the mean vertical dispersion of average shots at 1,000 yards is found to be 8.29 feet. If the height of the target is now divided by this mean vertical dispersion, the "probability factor" is obtained thus: 5÷8.29=0.603. Look in Table II for the probability factor 0.603, and, by interpolation, it is found to correspond to a percentage of 31.55. That is to say, a target of infinite width and 5 feet high, if fired at by average shots, with the correct elevation, would receive 31.55 per cent of hits. The target is not of infinite width, however, and it now becomes necessary to compute the percentage of this 31.55 per cent of hits that would be received on the target's 3 feet of width. This is arrived at in a manner similar to the computation of the vertical probabilities. From Table I is found the mean lateral dispersion of average shots at 1,000 yards—7.37 feet. The width of the target is divided by this figure, the quotient being the probability factor, thus: 3÷7.37=0.407. The probability factor, 0.407 (see Table II), corresponds to a percentage of 21.65. That is to say, a target of infinite height and 3 feet wide would receive 21.65 per cent of hits under the conditions named. If this result to be expected on a strip 3 feet wide (21.65 per cent) be now multiplied by the result to be expected on a strip 5 feet high (31.55 per cent), the product will be the percentage of hits to be expected on a target 5 feet high by 3 feet wide by average shots

at 1,000 yards with the correct elevation—i. e., with the center of impact at the center of the target. Thus, $21.65 \times 31.55 = 6.83$ per cent, which is the desired result.

7. To find the percentage of hits on a target composed of a number of silhouettes, the same process is employed, the final figure being obtained by finding the ratio of the surface of the exposed figures to that of the rectangle that incloses them.

Example.—With the correct elevation, what percentage of hits will be obtained by average shots on a line of 10 kneeling figures occupying a front of 10 yards; range 500 yards? The rectangle inclosing the line of figures is 42 inches high by 360 inches wide, on which, according to the example above noted, there would be obtained 42.5 per cent of hits. The surface of this rectangle contains 15,120 square inches, while the surface of the 10 figures contains only 6,550 square inches (see Table III), which is 43.3 per cent of the surface of the rectangle. As the vulnerable surface is only 43.3 per cent, then the hits to be expected on this surface are 43.3 per cent of 42.5 per cent, or 18.40 per cent. The percentage of hits determines the accuracy of the firing. Thus, as in the above firing, there should have been 18.40 per cent of hits. Had a firing line obtained only 15 per cent of hits in this firing, then their percentage of accuracy would have been 15/18.4, or 81.5 per cent.

8. Having found the percentage of accuracy attained by any unit in any exercise, it next becomes necessary, if this percentage be low, to determine the causes of inaccuracy.

9. The effect of invisibility or a low degree of visibility of targets in diminishing the effects of fire is very marked, and is due in the first place to the difficulty of pointing out obscure targets, and in the second place to the difficulty in aiming accurately at a faintly outlined object. In cases where figures are not conspicuous enough to serve in themselves as aiming points, auxiliary aiming points must be selected and designated to the firing line. This is a difficult procedure, requiring good training and perfect understanding between officers and men. More time is required in such cases and when different elements of an objective possess different

degrees of visibility the distribution is likely to be affected, the greater visibility of some of the figures serving to attract the aim of the marksmen. Assuming a perfect performance so far as target designation and understanding are concerned, there is still loss in effect below computed results, due to varying degrees of visibility of figure targets, in that usually a less well-defined aiming point is presented and the dispersion of the individual is thereby increased. In certain lights figure targets may be plainly seen, and under opposite conditions as to light and background the outlines are barely distinguishable from the surroundings. Between these two extremes of high and low visibility there is some latitude. An effort has been made to establish a measure of this loss in effect, and after certain experimental firings and taking all things into account, it is estimated that the maximum loss of accuracy expressed in percentage of hits considered to be admissible with troops who have been given suitable visual training is 25 per cent. This figure is a maximum, and the loss will usually be less, the amount to be assigned being a matter of judgment.

10. In addition to that which is due to low visibility, loss of accuracy may be due to wild firing which may result from—

1. Nervous excitement, firing without looking through the sights.
2. Not firing at the designated objective.
3. Firing faster than is consistent with accuracy (faster than ordered).
4. Not setting sight as ordered.

All of which may be attributed to poor fire discipline or control, or both. It may also be caused by—

5. Vague and indefinite instructions concerning the location and extent of the objective.
6. Hurried, indistinct, or ambiguous orders for firing.
7. Incorrect estimation of the range.

All of which may be attributed to poor fire direction. Of all these factors the one that is most potent in the reduction of accuracy is the error in the estimation of ranges.

11. The effect of incorrect estimates may be computed within a close approximation by finding the ratio between the error and the mean longitudinal dispersion for that range. Having found this ratio, the reduction in accuracy is found in Table V.

12. *Example.*—Average shots fire at a range of 900 yards, but use an elevation of 1,000 yards. What effect will this error have on their hits? From the table of dispersions it is found that the mean longitudinal dispersion of average shots at 1,000 yards is 105.89 yards. The error in range is 100 yards. The ratio of the error to the mean dispersion is 100÷105.89, or 0.944. This 0.944 is the density factor and corresponds to a density (see Table V) of 0.445. That is to say, this firing would have resulted in but 44.5 per cent of the hits that would have been obtained had the correct elevation been used. In seeking for causes of loss of accuracy one should first look for the error in estimating the range, and if this does not fully account for the reduction, then one must look to lack of proficiency in fire discipline, control, and direction for the answer.

13. Having disposed of the accuracy of the fire, distribution is next taken up. What is sought is an evenly distributed fire. When the fire is evenly distributed the number of figures struck depends on the ratio of the number of hits to the number of figures in the target. Having found this ratio, the percentage of figures that should have been struck can be read directly from the "Table of distribution," hereto appended.

14. *Example* (see Table IV).—On a target consisting of 100 figures there are 50 hits on 26 figures. What is the percentage of distribution? The ratio of hits to targets is 50/100 or 0.50. From the table the factor 0.5 corresponds to a percentage of 39.4 figures that should have been struck. That is to say, 39 per cent of 100 figures or 39 figures should have been struck. As only 26 figures were struck, however, then the percentage of distribution is 26/39 or 66 per cent.

15. An even distribution of fire is usually obtained by allotting certain definite sectors of the target to each subdivision of the

firing line. The company commander designates the sectors for each platoon; the platoon commanders, the sectors for each section, etc. Ambiguity in giving instructions as to distribution will cause a falling off in the percentage of figures struck, as will also an indifferent control or execution of these instructions. An equally distributed fire is especially difficult of attainment when firing at a group in which some of the targets stand out in bold relief and others are obscure or partially hidden. Men instinctively fire at the targets they can see. Failure to attain a proper distribution under such circumstances usually indicates a lack of good fire discipline and control, provided the commander of the firing line has issued lucid orders.

16. Next in order comes the matter of time. The time required for the execution of an exercise includes several operations other than the actual delivery of fire. They are:

1. Making a preliminary reconnaissance for the purpose of locating the targets.
2. Selecting a position from which the most effective fire may be brought to bear upon the target.
3. Finding the range to the target.
4. Placing the organization in the position selected.
5. Pointing out the target to subordinate commanders and indicating to them the sectors that are to be covered by the fire of their subdivisions.
6. Pointing out the targets to the individuals of the firing line.
7. Giving the preliminary commands for firing.
8. Setting sights.
9. Assuming a position for aiming at the designated objective.

No fixed standard of time can be set down for each or any of these operations. It will vary somewhat with each exercise, depending upon the nature of the terrain, the range, and the degree of visibility of the targets.

17. There remains the question of the actual time required to execute the fire, since it is not absolutely the number of hits made,

but it is the number of hits made in a unit of time which must be the basis of judgment. Von Rohne states: "In field firing it is less a matter of obtaining large percentages of hits than of an absolute large number of hits in a unit of time." There is necessarily a limit to rapidity of fire which if exceeded will result in some loss in accuracy. This rate of effective fire depends upon a number of factors:

1. It will be faster for trained than for untrained troops.
2. A company on a peace footing will have a greater rapidity of effective fire than one on a war footing.
3. It will be faster at a large than at a small target.
4. It will be faster at a target which stands out in bold relief than at one which is vague in outline and whose color blends with a neutral background.
5. The physical condition and the morale of untrained troops has a marked influence on the rapidity of effective fire.
6. The aiming position also has its effect—one can fire faster from an easy position than from a cramped one.
7. It will be faster at short range than at long range.
8. It will be faster at the beginning of an action than after firing has continued for some time.

18. There is some variety of opinion as to the rates of fire which are consistent with accuracy, and it is obvious that in proposing a standard of performance no more can be done than to present an approximation to which there must be exceptions. The standard rates of fire proposed below are based upon experience and observation at the Musketry School. When firing a single clip the rate of fire is obviously faster than when two or more clips are fired.

Range.

10 per minute:
200 yards.
300 yards.
400 yards.
7.5 per minute:

500 yards.
600 yards.
700 yards.
5 per minute.
800 yards.
900 yards.
1,000 yards.

This rate includes the time required for recharging the magazine which is taken to be 10 seconds. Should the rate of fire at any range fall very much below the rate given it may be said that a proper use has not been made of the element of time, and should this rate be very much in excess of the standard given it may be concluded that there has been some loss in accuracy. The rates given should not exclude higher rates of fire in the case of large and very conspicuous targets, such as dense skirmish lines, bodies of cavalry, or batteries of artillery. In no case at ordinary targets, even at the longest range given above, should the rate of fire fall below 5 shots per minute. A lower rate it has been found can not improve the accuracy of the fire in detachment firing, and on the other hand the rate of 10 shots per minute can not be exceeded by the average soldier without a loss in accuracy. A high rate of fire may easily degenerate into unaimed fire.

THE CRITIQUE.

19. In order to be of instructional value every firing exercise should be followed by a critique delivered by a superior officer based upon the conduct of the exercise and the results obtained in accuracy, distribution, and time.

20. In field-firing exercises over unknown ground, the accuracy to be expected from average shots, assuming an error of 5 per cent to have been made in the estimation of the range, is considered to be a proper standard of proficiency in case the performance has been good in other respects.

21. It is not admissible, however, merely to say that a command or a detachment is proficient, or deficient, or to characterize

a firing exercise as "Good," "Satisfactory," or "Poor." If no more than this be said no one will know what faults have been committed, or how they should be corrected. The critique should begin with a statement of the exercise, including a description of the targets—kind, number, location, front covered, or intervals between figures, the actual range, the estimated range, the time required for firing—and the computed percentage of hits to be expected by average shots under good leaders, and also by good shots under the same circumstances. This should be followed by a brief outline of the tactical idea involved in the proper execution of the exercise, and this in turn is followed by comments on the manner in which the idea was actually carried out.

22. The accuracy obtained as shown in the actual number of hits made in the exercise should be compared with that to be expected from average and good shots under favorable conditions, and in case of deficiency the reasons therefor should be stated.

23. The same course should be followed with the results obtained in distribution and time which should be taken up in turn.

24. The operations which precede the actual firing and to which particular reference is made in paragraph 16 may be spoken of as the preparation. This phase of a firing exercise has a somewhat remote bearing on the actual results obtained in firing, but must receive some consideration. Assuming correct tactical procedure, the chief element for consideration is the matter of *time*, and in judging the time consumed prior to opening fire one must consider all the difficulties that have been encountered and then determine whether or not there has been an unreasonable delay which would not have occurred had the leadership been good and the organization properly trained.

25. This part of the critique might be worded, "The preparation was completed with reasonable celerity," or "The preparation consumed 12 minutes. This is considered too long and is mainly due to:

"1. Lack of familiarity with range-finding methods.

"2. Lack of training in describing objectives.

"3. Inadequate reconnaissance resulting in several changes of position before the firing line was so placed that the targets could be seen."

"Further training in these subjects would tend toward greater promptness in opening fire."

26. It will usually be sufficient merely to comment on minor errors committed in the course of the preparation, but in case of serious and unnecessary delays in opening fire, which in combat would give an active enemy a decided advantage, weight should be given in proportion to the fault committed. It should be borne in mind, however, that in passing judgment as to proficiency or deficiency the actual results obtained in firing by a detachment or organization must remain the chief basis, however much this judgment may need to be modified through faults committed in the preparation.

JUDGMENT OF PROFICIENCY TEST AND STANDARD OF PROFICIENCY THEREFOR.

27. The three courses in firing prescribed in parargraph 352, Provisional Small Arms Firing Manual, are designed not so much to illustrate possible phases or situations in action, as is the case in the arrangement of field-firing exercises, as to provide a firing exercise the conduct of which makes for the company or troop a test not only of the ability to shoot, but of the ability to make this skill effective through the means of fire discipline, fire control, and fire direction. As this test is required to be held on Class A ranges the question of distances can not be made to enter as an unknown factor to any great extent. In other respects the arrangement being the same, the basis of judgment and rules provided for field firing may be applied to the results obtained with the three courses in firing. The standard of proficiency settled upon will also be applicable subject to the exception that the percentage of error allowed in field firing is not admissible.

28. A special requirement is imposed, however, in the case of the three courses in firing in that besides determining the question of proficiency or deficiency a rating of "Good," "Very good,"

or "Excellent" is called for according to the results obtained in the case of any organization attaining proficiency.

29. To carry out this provision the four principal factors named may be taken as the basis of judgment as in all field firing exercises, and of these accuracy or the percentage of hits obtained should be given the first consideration.

30. Should a company in firing one of the three prescribed courses obtain a percentage equal or superior to that to be expected from good shots using a sight setting corresponding to the range as computed from tables, then the organization should be given a rating of "Excellent" provided the distribution has not fallen much below what it should be as indicated in Table IV and the rate of fire has not fallen much below the rates given in paragraph 18.

31. Should the organization firing make a percentage of hits about equal to that which is to be expected from average shots using the exact elevation as computed from Tables I, II, and III, then it should be entitled to be classed as "Proficient" and given a rating of "Good" provided the distribution is in close accordance with the hits made as in Table IV, and if the time of execution of the fire agrees closely with rates laid down in paragraph 18. In this case, as ranges will be known very closely, the error of 5 per cent conceded in paragraph 20 is not admissible.

32. In the general case of field firing advantage will appear when the ground surface enables the shot strike to be seen, as, by observation of this effect, errors in elevation may be corrected. The proficiency test being held over ground which is familiar to the organization commander, large errors in elevation are not to be expected. Consequently, the advantage that might be obtained by one organization over another due to differences in surface condition is not apt to be sufficiently important to justify a modification of the standard of proficiency.

33. Should the results obtained in accuracy, distribution, and time of execution of the fire be considerably in excess of that which would justify a rating of "Good," and should they fall somewhat short of being "Excellent" as specified above, a rating "Very Good" should be given.

34. Should the results obtained in accuracy in any firing course be very much below the results computed for average shots, the organization should be declared "Deficient" unless it appears that conditions as to visibility have been sufficient to account for this shortcoming. As an aid to judgment in such a matter reference is made to the statement of percentage of reduction given in paragraph 9. This percentage given represents the maximum reduction in effect due to lack of visibility. With this as a guide each case should be judged on its merits according to conditions as to visibility existing at the time, care being taken that excessive allowances be not made on this account.

35. In other cases a due consideration of the effects of invisibility may be sufficient to justify an increase in rating over that which is indicated by the actual results obtained considered alone.

36. Finally, consideration should be given to the time occupied in the preparation and to the correctness of the procedure followed. As to the weight to be given in the final conclusion to the factor of preparation no rule can be stated more specific than that given in paragraph 26, and this should be sufficient.

37. The purpose of all field firing exercises, and of those firing exercises designed as tests, is through definite and intelligent criticism to eradicate faulty procedure and bring about an improvement in musketry. With this as a guiding principle, and with a known standard of comparison, and rules of application as given herein, it may be expected that fair and impartial judgments may be reached according to the intent of paragraph 355, Small-Arms Firing Manual.

38. The appended tables numbered from 1 to 6, inclusive, are for general use in connection with this subject; the tables numbered from 7 to 22, inclusive, are for special use in connection with the proficiency test. The data shown in the latter tables have been computed with reference to the particular conditions of the three courses in firing and the ordinary computations are thus avoided. By reference to the proper tables the accuracy of good and average shots at various ranges and on different field targets may readily be

found, the intervals between targets being uniform. For the sake of comparison, tables showing the results to be expected with the center of impact properly placed are also given.

39. The effect of errors in the estimation of ranges on the accuracy of the fire may be read directly from the charts shown in plates 1 and 2, the critique being thus facilitated in that the loss in effect will not have to be computed in each case. These charts are graphic presentations of results computed from the table of density factors, plate 1 being for "good" shots, and plate 2 being for "average" shots. At the left-hand edge of the chart is a vertical scale of ranges in yards, with a least reading of 20 yards. At the top of the chart is a horizontal scale of errors in yards, with a least reading of 2 yards. The diagonal curves on the face of the chart represent percentages of accuracy that would be obtained with given errors in the estimation of the range. These percentages are based on the amount that would have been obtained had the correct elevation been used—i. e., this amount is considered the maximum, or 100 per cent. An example will best illustrate the use of the chart. Good shots are firing at 700 yards with an elevation corresponding to 800 yards. What percentage of effect would they obtain? As "good" shots are being considered, reference would be made to plate 1. As the true range is 700, and the range used is 800, the error is obviously 100 yards. Then follow the horizontal line, cutting the range scale at 800, to the right until it intersects the vertical line which cuts the error scale at 100. The curve which passes through this point of intersection is the 50 per cent curve, and is numbered 50. Therefore, under the conditions noted, there would be obtained 50 per cent of the hits that would have been obtained had the correct elevation been used. Had this firing been executed on a line of 30 prone figures with an interval of 1 yard from edge to edge, the percentage of hits to be expected with the exact elevation would be 4.84 per cent (see Table X). Therefore with an error of 100 yards there could be expected but 50 per cent of this amount ($0.0484 \times 0.50 = 0.0242$), or 2.42 per cent of hits.

TABLE I.—*Collective dispersions.*

[Mean (50 per cent) zones.]

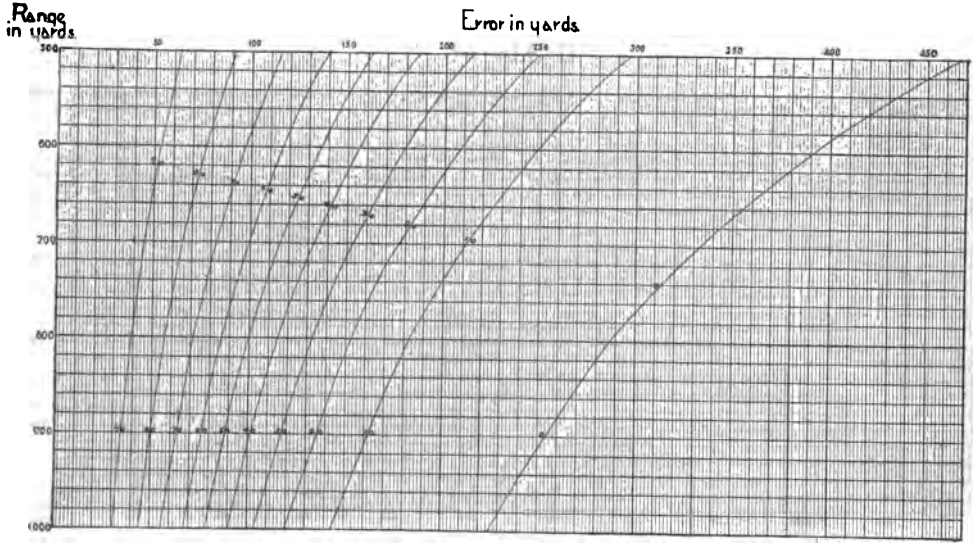
Range.	Average shots.			Good shots.		
	Vertical.	Lateral.	Longitudinal.	Vertical.	Lateral.	Longitudinal.
	Feet.	*Feet.*	*Yards.*	*Feet.*	*Feet.*	*Yards.*
50 yards	0.55	0.50	.....	0.47	0.45	.....
100 yards	1.07	0.97	.....	0.91	0.87	.....
150 yards	1.57	1.39	.....	1.33	1.25	.....
200 yards	2.03	1.77	398.21	1.72	1.59	337.40
250 yards	2.46	2.11	.....	2.09	1.90	.....
300 yards	2.87	2.41	348.79	2.44	2.17	296.50
350 yards	3.24	2.68	.....	2.75	2.41	.....
400 yards	3.59	2.90	282.04	3.05	2.61	239.62
450 yards	3.90	3.08	.....	3.32	2.77	.....
500 yards	4.21	3.26	219.91	3.58	2.93	187.01
550 yards	4.53	3.49	.....	3.85	3.14	.....
600 yards	4.88	3.75	185.37	4.12	3.38	156.51
650 yards	5.24	4.06	.....	4.45	3.65	.....
700 yards	5.62	4.40	156.66	4.78	3.96	133.25
750 yards	6.02	4.79	.....	5.12	4.31	.....
800 yards	6.44	5.23	135.28	5.47	4.71	114.91
850 yards	6.87	5.70	.....	5.84	5.13	.....
900 yards	7.33	6.21	118.57	6.29	5.33	101.86
950 yards	7.80	6.77	.....	6.63	6.09	.....
1,000 yards	8.29	7.37	105.89	7.03	6.63	90.05

TABLE II.—*Probability factors.*

Factor.	Per cent.	Factor.	Per cent.	Factor.	Per cent.	Factor.	Per cent.	Factor.	Per cent.	Factor.	Per cent.
0.02	1.1	0.52	27.4	1.02	50.9	1.52	69.5	2.02	82.7	2.55	91.5
0.04	2.2	0.54	28.4	1.04	51.7	1.54	70.1	2.04	83.1	2.60	92.1
0.06	3.2	0.56	29.4	1.06	52.5	1.56	70.7	2.06	83.5	2.65	92.6
0.08	4.3	0.58	30.4	1.08	53.4	1.58	71.3	2.08	83.9	2.70	93.1
0.10	5.4	0.60	31.4	1.10	54.2	1.60	71.9	2.10	84.3	2.75	93.6
0.12	6.5	0.62	32.4	1.12	55.0	1.62	72.6	2.12	84.7	2.80	94.1
0.14	7.5	0.64	33.4	1.14	55.8	1.64	73.1	2.14	85.1	2.85	94.5
0.16	8.6	0.66	34.4	1.16	56.6	1.66	73.7	2.16	85.5	2.90	95.0
0.18	9.7	0.68	35.4	1.18	57.4	1.68	74.3	2.18	85.9	2.95	95.3
0.20	10.7	0.70	36.3	1.20	58.2	1.70	74.9	2.20	86.2	3.00	95.7
0.22	11.8	0.72	37.3	1.22	58.9	1.72	75.4	2.22	86.6	3.05	96.0
0.24	12.9	0.74	38.2	1.24	59.7	1.74	75.9	2.24	86.9	3.10	96.4
0.26	13.9	0.76	39.2	1.26	60.5	1.76	76.5	2.26	87.3	3.15	96.6
0.28	15.0	0.78	40.1	1.28	61.2	1.78	77.0	2.28	87.6	3.20	96.9
0.30	16.0	0.80	41.1	1.30	61.9	1.80	77.5	2.30	87.9	3.25	97.2
0.32	17.1	0.82	42.0	1.32	62.7	1.82	78.0	2.32	88.2	3.30	97.4
0.34	18.1	0.84	42.9	1.34	63.4	1.84	78.5	2.34	88.5	3.35	97.6
0.36	19.2	0.86	43.8	1.36	64.1	1.86	79.0	2.36	88.9	3.40	97.8
0.38	20.2	0.88	44.7	1.38	64.8	1.88	79.5	2.38	89.2	3.45	98.0
0.40	21.3	0.90	45.6	1.40	65.5	1.90	80.0	2.40	89.5	3.50	98.2
0.42	22.3	0.92	46.5	1.42	66.2	1.92	80.5	2.42	89.7	3.60	98.5
0.44	23.3	0.94	47.4	1.44	66.9	1.94	80.9	2.44	90.0	3.70	98.7
0.46	24.4	0.96	48.3	1.46	67.5	1.96	81.4	2.46	90.3	3.80	98.9
0.48	25.4	0.98	49.1	1.48	68.2	1.98	81.8	2.48	90.6	3.90	99.2
0.50	26.4	1.00	50.0	1.50	68.8	2.00	82.3	2.50	90.8	4.00	99.3

TABLE III.—*Vulnerable areas and dimensions of field targets.*

Kind of target.	Height.	Width.	Vulnerable areas.			Vulnerable area compared with area of rectangle inclosing target.
			Square inches.	Square feet.	Square yards.	
	Inches.	*Inches.*				*Per cent.*
Prone (F).....	22	26	337	2.34027	0.26003	58.90
Kneeling (E)....	42	26	655	4.54861	0.50540	59.97
Standing (Q)....	68	24	833	5.78472	0.64274	51.04
Horseman (R)...	96	50	2,456	17.01388	1.89506	51.16


Range in yards
Error in yards
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600
700
800
900
1000
50
100
150
200
250
300
350
400
450

PLATE I.

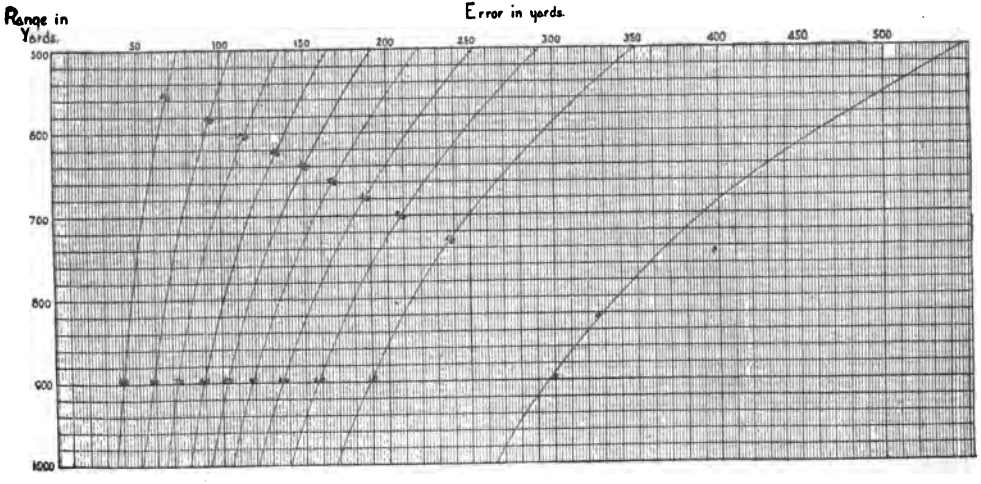
Range in Yards.
Error in yards.
50
100
150
200
250
300
350
400
450
500
500
600
700
800
900
1000

PLATE II.

TABLE IV.—*Table for computing distribution.*

H.	D.	H.	D.	H.	D.	H.	D.	H.	D.
0.01	1.0	0.41	33.6	0.81	55.5	1.42	75.8	2.55	92.2
0.02	2.0	0.42	34.3	0.82	56.0	1.44	76.3	2.60	92.6
0.03	3.0	0.43	34.9	0.83	56.4	1.46	76.8	.....	.....
0.04	3.9	0.44	35.6	0.84	56.8	1.48	77.2	2.65	92.9
0.05	4.9	0.45	36.2	0.85	57.3	1.50	77.7	2.70	93.3
0.06	5.8	0.46	36.9	0.86	57.7	1.52	78.1	.....	.....
0.07	6.8	0.47	37.5	0.87	58.1	1.54	78.6	2.75	93.6
0.08	7.7	0.48	38.1	0.88	58.5	1.56	79.0	2.80	93.9
0.09	8.6	0.49	38.7	0.89	58.9	1.58	79.4	.....	.....
0.10	9.5	0.50	39.4	0.90	59.3	1.60	79.8	2.85	94.2
								2.90	94.5
0.11	10.6	0.51	40.0	0.91	59.8	1.62	80.2	.....	.....
0.12	11.3	0.52	40.5	0.92	60.2	1.64	80.6	2.95	94.8
0.13	12.2	0.53	41.1	0.93	60.6	1.66	81.0	3.00	95.0
0.14	13.1	0.54	41.7	0.94	60.9	1.68	81.4	.....	.....
0.15	13.9	0.55	42.3	0.95	61.3	1.70	81.7	3.25	96.4
0.16	14.8	0.56	42.9	0.96	61.7	1.72	82.1	3.50	97.8
0.17	15.6	0.57	43.4	0.97	62.1	1.74	82.4	.....	.....
0.18	16.5	0.58	44.0	0.98	62.5	1.76	82.8	3.75	98.8
0.19	17.3	0.59	44.6	0.99	62.8	1.78	83.1	4.00	98.7
0.20	18.1	0.60	45.1	1.00	63.2	1.80	83.5	.....	.....
								4.50	99.0
0.21	18.9	0.61	45.7	1.02	63.9	1.82	83.8	5.00	99.3
0.22	19.7	0.62	46.2	1.04	64.7	1.84	84.1	.....	.....
0.23	20.5	0.63	46.7	1.06	65.4	1.86	84.4	5.50	99.5
0.24	21.3	0.64	47.2	1.08	66.0	1.88	84.7	6.00	99.8
0.25	22.1	0.65	47.8	1.10	66.7	1.90	85.0	.....	.....
0.26	22.9	0.66	48.3	1.12	67.4	1.92	85.3	.....	.....
0.27	23.7	0.67	48.9	1.14	68.0	1.94	85.6	.....	.....
0.28	24.4	0.68	49.4	1.16	68.6	1.96	85.9	.....	.....
0.29	25.2	0.69	49.8	1.18	69.3	1.98	86.2	.....	.....
0.30	26.0	0.70	50.3	1.20	69.9	2.00	86.5	.....	.....
0.31	26.7	0.71	50.8	1.22	70.5	2.05	87.1	.....	.....
0.32	27.4	0.72	51.3	1.24	71.1	2.10	87.7	.....	.....
0.33	28.1	0.73	51.8	1.26	71.6	2.15	88.4	.....	.....
0.34	28.8	0.74	52.3	1.28	72.2	2.20	88.9	.....	.....
0.35	29.5	0.75	52.8	1.30	72.7	2.25	89.5	.....	.....
0.36	30.2	0.76	53.2	1.32	73.3	2.30	90.0	.....	.....
0.37	30.9	0.77	53.7	1.34	73.8	2.35	90.4	.....	.....
0.38	31.6	0.78	54.2	1.36	74.3	2.40	90.9	.....	.....
0.39	32.3	0.79	54.6	1.38	74.8	2.45	91.4	.....	.....
0.40	32.9	0.80	55.0	1.40	75.3	2.50	91.8	.....	.....

If every figure in the target is hit H times on the average, then from the Table, D per cent of the figures will be hit.

TABLE V.—*Density factors.*

F.	D.	F.	D.	F.	D.
0.0	1.000	1.0	0.402	2.0	0.026
0.1	0.991	1.1	0.334	2.1	0.019
0.2	0.964	1.2	0.270	2.2	0.012
0.3	0.921	1.3	0.216	2.3	0.008
0.4	0.864	1.4	0.168	2.4	0.006
0.5	0.796	1.5	0.130	2.5	0.003
0.6	0.720	1.6	0.098	.....	.....
0.7	0.640	1.7	0.072	.....	.....
0.8	0.559	1.8	0.052	.....	.....
0.9	0.479	1.9	0.038	.....	.....

TABLE VI.—*Displacement of the center of impact due to aiming at the bottom of the target with the battle sight or using an elevation corresponding to the exact range with the leaf sight.*

[Centers of impact are shown as above (+) or below (−) the point of aim.]

BATTLE SIGHT.

[Corresponds to range 436 yards.]

Range.	Center of impact.		Range.	Center of impact.	
	Inches.	Feet.		Inches.	Feet.
200 yards	+17.04	+1.42	250 yards	+16.44	+1.37
300 yards	+15.84	+1.32	350 yards	+10.98	+0.91
400 yards	+ 6.12	+0.51	450 yards	− 3.78	−0.31
500 yards	−13.68	−1.14	550 yards	−24.78	−2.06
600 yards	−37.08	−3.09			

LEAF SIGHT.

[Approximately 50 yards short at all ranges.]

600 yards	−14.87	−1.24	550 yards	−12.80	−1.07
700 yards	−19.98	−1.67	650 yards	−17.42	−1.45
800 yards	−26.81	−2.23	750 yards	−23.40	−1.95
900 yards	−34.60	−2.88	850 yards	−30.66	−2.55
1,000 yards	−44.05	−3.67	950 yards	−39.30	−3.27

TABLE VII.—*Percentage of hits to be expected from good shots with the battle sight on lines of prone figures with an interval of 1 yard edge to edge and with center of impact misplaced by aiming at lower edge of target.*

Number of targets.	Range (in yards).								
	200	250	300	350	400	450	500	550	600
1	18.54	14.03	10.96	9.14	7.06	6.07	4.53	3.14	1.93
2	17.09	14.71	12.78	11.47	9.24	8.27	6.45	4.58	2.93
3	15.04	13.08	11.52	10.54	8.64	7.87	6.25	4.53	2.96
4	14.19	12.34	10.87	9.94	8.15	7.43	5.90	4.31	2.83
5	13.72	11.93	10.51	9.61	7.88	7.18	5.70	4.16	2.74
6	13.43	11.68	10.28	9.41	7.71	7.03	5.58	4.08	2.68
7	13.23	11.50	10.13	9.27	7.60	6.92	5.50	4.01	2.64
8	13.07	11.36	10.01	9.15	7.50	6.84	5.43	3.96	2.61
9	12.97	11.28	9.93	9.09	7.45	6.79	5.39	3.94	2.59
10	12.87	11.20	9.86	9.02	7.39	6.74	5.35	3.91	2.57
11	12.81	11.14	9.81	8.97	7.35	6.70	5.32	3.89	2.56
12	12.75	11.08	9.76	8.93	7.32	6.67	5.30	3.87	2.54
13	12.69	11.03	9.72	8.89	7.29	6.64	5.27	3.85	2.53
14	12.65	11.00	9.69	8.86	7.27	6.62	5.26	3.84	2.53
15	12.62	10.97	9.66	8.84	7.25	6.60	5.24	3.83	2.52
16	12.58	10.94	9.64	8.82	7.23	6.59	5.23	3.82	2.51
17	12.56	10.92	9.62	8.80	7.21	6.57	5.22	3.81	2.51
18	12.54	10.90	9.60	8.78	7.20	6.56	5.21	3.80	2.50
19	12.51	10.88	9.58	8.77	7.19	6.55	5.20	3.80	2.50
20	12.49	10.86	9.57	8.75	7.17	6.54	5.19	3.79	2.49
21	12.47	10.85	9.55	8.74	7.16	6.53	5.18	3.78	2.49
22	12.46	10.83	9.54	8.73	7.15	6.52	5.18	3.78	2.49
23	12.44	10.82	9.53	8.72	7.15	6.51	5.17	3.78	2.48
24	12.43	10.81	9.52	8.71	7.14	6.50	5.16	3.77	2.48
25	12.42	10.80	9.51	8.70	7.13	6.50	5.16	3.77	2.48
26	12.41	10.79	9.50	8.69	7.13	6.49	5.16	3.77	2.48
27	12.39	10.78	9.49	8.68	7.12	6.49	5.15	3.76	2.47
28	12.38	10.77	9.48	8.68	7.11	6.48	5.14	3.76	2.47
29	12.38	10.76	9.48	8.67	7.11	6.48	5.14	3.76	2.47
30	12.37	10.76	9.47	8.67	7.10	6.47	5.14	3.75	2.47
31	12.36	10.75	9.47	8.66	7.10	6.47	5.14	3.75	2.47
32	12.35	10.74	9.46	8.66	7.10	6.47	5.13	3.75	2.47
33	12.35	10.74	9.46	8.65	7.09	6.46	5.13	3.75	2.46
34	12.34	10.73	9.45	8.65	7.09	6.46	5.13	3.75	2.46
35	12.33	10.73	9.45	8.64	7.08	8.46	5.12	3.74	2.46
36	12.33	10.72	9.44	8.64	7.08	6.45	5.12	3.74	2.46
37	12.32	10.72	9.44	8.63	7.08	6.45	5.12	3.74	2.46
38	12.32	10.71	9.43	8.63	7.08	6.45	5.12	3.74	2.46
39	12.31	10.71	9.43	8.63	7.07	6.45	5.12	3.74	2.46
40	12.31	10.70	9.43	8.62	7.07	6.44	5.11	3.74	2.46
50	12.27	10.67	9.40	8.60	7.05	6.42	5.10	3.72	2.45
60	12.25	10.65	9.38	8.58	7.04	6.41	5.09	3.72	2.45
70	12.23	10.64	9.37	8.57	7.02	6.40	5.08	3.71	2.44
80	12.22	10.63	9.36	8.56	7.02	6.40	5.08	3.71	2.44
90	12.21	10.62	9.35	8.56	7.01	6.39	5.07	3.71	2.44
100	12.20	10.61	9.34	8.55	7.01	6.39	5.07	3.70	2.44
Infinite number	12.13	10.55	9.29	8.50	6.97	6.35	5.04	3.68	2.42

TABLE VIII.—*Percentage of hits to be expected from good shots with the battle sight on lines of prone figures with an interval of 1 yard edge to edge and with center of impact at center of target.*

Number of targets.	Range (in yards).								
	200	250	300	350	400	450	500	550	600
1	19.82	14.52	12.17	9.14	7.86	6.83	5.97	5.25	4.58
2	18.28	15.23	13.16	11.47	10.29	9.29	8.50	7.65	6.97
3	16.08	13.54	11.85	10.54	9.62	8.85	8.24	7.56	7.04
4	15.17	12.77	11.18	9.94	9.07	8.35	7.77	7.20	6.73
5	14.67	12.35	10.82	9.61	8.78	8.08	7.52	6.96	6.51
6	14.36	12.09	10.58	9.41	8.59	7.88	7.36	6.81	6.37
7	14.14	11.91	10.43	9.27	8.46	7.79	7.25	6.71	6.28
8	13.97	11.76	10 30	9.15	8.36	7.69	7.16	6.63	6.20
9	13.87	11.67	10.22	9.09	8.29	7.63	7.10	6.58	6.15
10	13.77	11.59	10.15	9.02	8.23	7.58	7.05	6.53	6.11
11	13.69	11.53	10.09	8.97	8.19	7.54	7.02	6.49	6.08
12	13.63	11.47	10 05	8.93	8.15	7.50	6.98	6.46	6.05
13	13.57	11.42	10.00	8.89	8.11	7.47	6.95	6.43	6.02
14	13.53	11.39	9.97	8.86	8.09	7.45	6.93	6.42	6.00
15	13.49	11.36	9.95	8.84	8.07	7.43	6.91	6.40	5.99
16	13.46	11.33	9.92	8.82	8.05	7.41	6.89	6.38	5.97
17	13.43	11.31	9.99	8.80	8.03	7.39	6.88	6.37	5.96
18	13.40	11.28	9.88	8.78	8.02	7.38	6.87	6.36	5.95
19	13.38	11.26	9.86	8.77	8.00	7.36	6.85	6.34	5.94
20	13.36	11.24	9.85	8.75	7.99	7.35	6.84	6.33	5.93
21	13.34	11.23	9.83	8.74	7.98	7.34	6.83	6.32	5.92
22	13.32	11.21	9.82	8.73	7.97	7.33	6.82	6.32	5.91
23	13.30	11.20	9.81	8.72	7.96	7.32	6.82	6.31	5.90
24	13.29	11.19	9.79	8.71	7.95	7.31	6.81	6.30	5.90
25	13.28	11.18	9.79	8.70	7.94	7.31	6.80	6.30	5.89
26	13.27	11.17	9.78	8.69	7.93	7.30	6.80	6.29	5.89
27	13.25	11.16	9.77	8.68	7.93	7.29	6.79	6.28	5.88
28	13.24	11.15	9.76	8.68	7.92	7.29	6.78	6.28	5.88
29	13.24	11.14	9.76	8.67	7.92	7.29	6.78	6.28	5.87
30	13.22	11.13	9.75	8.67	7.91	7.28	6.78	6.27	5.87
31	13.22	11.13	9.74	8.66	7.91	7.28	6.77	6.27	5.87
32	13.21	11.12	9.74	8.66	7.90	7.27	6.77	6.26	5.86
33	13.20	11.12	9.73	8.65	7.90	7.27	6.77	6.26	5.86
34	13.20	11.11	9.73	8.65	7.89	7.27	6.76	6.26	5.86
35	13.19	11.10	9.72	8.64	7.89	7.26	6.76	6.25	5.85
36	13.18	11.10	9.72	8.64	7.88	7.26	6.75	6.25	5.85
37	13.18	11.09	9.71	8.63	7.88	7.25	6.75	6.25	5.85
38	13.17	11.09	9.71	8.63	7.88	7.25	6.75	6.25	5.85
39	13.17	11.09	9.71	8.63	7.88	7.25	6.75	6.24	5.84
40	13.16	11.08	9.70	8.62	7.87	7.25	6.74	6.24	5.84
50	13.12	11.05	9.67	8.60	7.85	7.22	6.72	6.22	5.82
60	13.10	11.03	9.66	8.58	7.83	7.21	6.71	6.21	5.81
70	13.08	11.01	9.64	8.57	7.82	7.20	6.70	6.20	5.80
80	13.07	11.00	9.63	8.56	7.82	7.19	6.70	6.20	5.80
90	13.06	10.99	9.62	8.56	7.81	7.19	6.69	6.19	5.79
100	13.05	10.98	9.62	8.55	7.80	7.18	6.68	6.19	5.79
Infinite number	12.97	10.92	9.56	8.50	7.76	7.14	6.64	6.15	5.76

TABLE IX.—*Percentage of hits to be expected from good shots with the leaf sight on lines of prone figures with an interval of 1 yard edge to edge and with center of impact displaced by using exact elevation.*

Number of targets.	Range (in yards).									
	550	600	650	700	750	800	850	900	950	1,000
1	4.20	3.62	3.08	2.64	2.22	1.91	1.67	1.30	1 12	0.96
2	6.12	5.51	4.84	4.32	3.73	3.26	2.93	2.46	2.07	1,79
3	6.65	5.56	5.07	4.68	4.16	3.77	3.49	2.82	2.69	2.31
4	6.75	5.32	4.88	4.57	4.13	3.80	3.59	3.15	2.89	2.55
5	6.56	5.14	4.72	4.42	4.00	3.72	3.55	3.13	2.82	2,74
6	6.44	5.03	4.62	4.32	3.91	3.64	3.47	3.06	2.79	2,60
7	6.36	4.96	4.55	4.26	3.85	3.58	3.42	3.02	2.75	2,56
8	6.30	4.90	4.50	4.20	3.81	3.54	3.38	2.98	2.71	2,53
9	6.26	4.86	4.46	4.17	3.78	3.51	3.35	2.96	2 69	2,51
10	6.22	4.82	4.43	4.14	3.75	3.49	3.33	2.94	2.67	2,49
11	6.19	4.80	4.41	4.12	3.73	3.47	3.31	2.92	2.66	2,48
12	6.17	4.78	4.39	4.10	3.71	3.45	3.30	2.91	2.65	2,47
13	6.14	4.75	4.37	4.08	3.70	3.44	3.28	2.89	2.64	2,45
14	6.13	4.74	4.36	4.07	3.69	3.43	3.27	2.89	2.63	2,45
15	6.11	4.73	4.34	4.06	3.68	3.42	3.26	2.88	2.62	2,44
16	6.10	4.71	4.33	4.05	3.67	3.41	3.26	2.87	2.61	2,43
17	6.09	4.71	4.32	4.04	3.66	3.40	3.25	2.86	2.61	2,43
18	6.08	4.70	4.31	4.03	3.65	3.40	3.24	2.86	2.61	2,43
19	6.07	4.69	4.31	4.03	3.64	3.39	3.24	2.85	2.60	2,42
20	6.06	4.68	4.30	4.02	3.64	3.38	3.23	2.85	2.59	2,42
21	6.05	4.67	4.29	4.01	3.63	3.38	3.23	2.84	2.59	2,41
22	6.05	4.67	4.29	4.01	3.63	3.37	3.22	2.84	2.59	2,41
23	6.04	4.66	4.28	4.00	3.62	3.37	3.22	2.84	2.58	2,41
24	6.04	4.66	4.28	4.00	3.62	3.37	3.21	2.83	2.58	2,40
25	6.03	4.65	4.27	4.00	3.62	3.36	3.21	2.83	2.58	2,40
26	6.03	4.65	4.27	4.00	3.61	3.36	3.21	2.83	2.58	2,40
27	6.02	4.64	4.27	3.99	3.61	3.36	3.21	2.83	2.57	2,40
28	6.02	4.64	4.26	3.98	3.61	3.35	3.20	2.82	2.57	2,40
29	6.02	4.64	4.26	3.98	3.61	3.35	3.20	2.82	2.57	2,39
30	6.01	4.63	4.26	3.98	3.60	3.35	3.20	2.82	2.57	2,39
31	6.01	4.63	4.26	3.98	3.60	3.35	3.20	2.82	2.57	2,39
32	6.01	4.63	4.25	3.98	3.60	3.35	3.20	2.82	2.57	2,39
33	6.00	4.63	4.25	3.97	3.60	3.34	3.19	2.82	2.57	2,39
34	6.00	4.63	4.25	3.97	3.60	3.34	3.19	2.82	2.56	2,39
35	6.00	4.62	4.25	3.97	3.59	3.34	3.19	2.81	2.56	2,39
36	6.00	4.62	4.24	3.97	3.59	3.34	3.19	2.81	2.56	2,39
37	4.99	4.62	4.24	3.97	3.59	3.34	3.19	2.81	2.56	2,38
38	4.99	4.62	4.24	3.96	3.59	3.34	3.19	2.81	2.56	2,38
39	4.99	4.61	4.24	3.96	3.59	3.34	3.19	2.81	2.56	2,38
40	4.99	4.61	4.24	3.96	3.59	3.33	3.18	2.81	2.56	2,38
50	4.97	4.60	4.22	3.95	3.57	3.32	3.17	2.80	2.55	2,37
60	4.97	4.59	4.22	3.94	3.57	3.32	3.17	2.79	2.54	2,37
70	4.96	4.58	4.21	3.94	3.56	3.31	3.16	2.79	2.54	2,37
80	4.95	4.58	4.21	3.93	3.56	3.31	3.16	2.79	2.54	2,36
90	4.95	4.58	4.20	3.93	3.56	3.31	3.16	2.79	2.54	2,36
100	4.95	4.57	4.20	3.93	3.55	3.31	3.16	2.78	2.53	2,36
Infinite number.	4.92	4.54	4.17	3.90	3.53	3.29	3.14	2.77	2.52	2,35

TABLE X.—*Percentage of hits to be expected from good shots with the leaf sight on lines of prone figures with an interval of 1 yard edge to edge and with center of impact at center of target.*

Number of targets.	Range (in yards).									
	550	600	650	700	750	800	850	900	950	1,000
1	5.25	4.58	3.97	3.21	2.89	2.53	2.17	1.94	1.58	1.40
2	7.65	6.97	6.24	5.26	4.85	4.31	3.80	3.40	2.92	2.62
3	7.56	7.04	6.54	5.69	5.41	4.99	4.54	3.91	3.67	3.38
4	7.20	6.73	6.30	5.54	5.38	5.02	4.67	4.36	3.95	3.72
5	6.96	6.51	6.09	5.37	5.20	4.92	4.61	4.33	3.98	3.80
6	6.81	6.37	5.96	5.25	5.09	4.81	4.51	4.24	3.94	3.80
7	6.71	6.28	5.87	5.17	5.01	4.74	4.45	4.18	3.88	3.74
8	6.63	6.20	5.80	5.11	4.95	4.68	4.39	4.12	3.83	3.70
9	6.58	6.15	5.76	5.07	4.91	4.65	4.36	4.09	3.80	3.67
10	6.53	6.11	5.72	5.03	4.88	4.61	4.33	4.06	3.78	3.64
11	6.49	6.08	5.69	5.01	4.85	4.59	4.30	4.04	3.76	3.63
12	6.46	6.05	5.66	4.98	4.83	4.57	4.28	4.02	3.74	3.61
13	6.43	6.02	5.63	4.96	4.81	4.55	4.26	4.01	3.72	3.59
14	6.42	6.00	5.62	4.94	4.79	4.54	4.25	3.99	3.71	3.58
15	6.40	5.99	5.60	4.93	4.78	4.52	4.24	3.98	3.70	3.57
16	6.38	5.97	5.59	4.92	4.77	4.51	4.23	3.97	3.69	3.56
17	6.37	5.96	5.58	4.91	4.76	4.50	4.22	3.96	3.68	5.56
18	6.36	5.95	5.57	4.90	4.75	4.49	4.21	3.96	3.68	3.55
19	6.34	5.94	5.55	4.89	4.74	4.48	4.20	3.95	3.67	3.54
20	6.33	5.93	5.55	4.88	4.73	4.47	4.20	3.94	3.66	3.54
21	6.32	5.92	5.54	4.88	4.72	4.47	4.19	3.94	3.66	3.53
22	6.32	5.91	5.53	4.87	4.72	4.47	4.19	3.93	3.65	3.53
23	6.31	5.90	5.52	4.87	4.71	4.46	4.18	3.93	3.65	3.52
24	6.30	5.90	5.52	4.86	4.71	4.45	4.18	3.92	3.64	3.52
25	6.30	5.89	5.51	4.86	4.70	4.45	4.17	3.92	3.64	3.52
26	6.29	5.89	5.51	4.85	4.70	4.45	4.17	3.92	3.64	3.51
27	6.28	5.88	5.50	4.85	4.69	4.44	4.16	3.91	3.63	3.51
28	6.28	5.88	5.50	4.84	4.69	4.44	4.16	3.91	3.63	3.51
29	6.28	5.87	5.50	4.84	4.69	4.44	4.16	3.91	3.63	3.50
30	6.27	5.87	5.49	4.84	4.69	4.43	4.16	3.90	3.63	3.50
31	6.27	5.87	5.49	4.83	4.68	4.43	4.15	3.90	3.63	3.50
32	6.26	5.86	5.48	4.83	4.68	4.43	4.15	3.90	3.62	3.50
33	6.26	5.86	5.48	4.83	4.68	4.43	4.15	3.90	3.62	3.50
34	6.26	5.86	5.48	4.83	4.68	4.42	4.14	3.90	3.62	3.49
35	6.25	5.85	5.48	4.82	4.67	4.42	4.14	3.89	3.62	3.49
36	6.25	5.85	5.47	4.82	4.67	4.42	4.14	3.89	3.62	3.49
37	6.25	5.85	5.47	4.82	4.67	4.42	4.14	3.89	3.61	3.49
38	6.25	5.85	5.47	4.82	4.67	4.42	4.14	3.89	3.61	3.49
39	6.24	5.84	5.47	4.82	4.66	4.41	4.14	3.89	3.61	3.49
40	6.24	5.84	5.47	4.81	4.66	4.41	4.14	3.89	3.61	3.48
50	6.22	5.82	5.45	4.80	4.65	4.40	4.12	3.87	3.60	3.47
60	6.21	5.81	5.44	4.79	4.64	4.39	4.12	3.87	3.59	3.47
70	6.20	5.80	5.43	4.78	4.63	4.38	4.11	3.86	3.59	3.46
80	6.20	5.80	5.43	4.78	4.63	4.38	4.11	3.86	3.58	3.46
90	6.19	5.79	5.42	4.78	4.63	4.38	4.10	3.85	3.58	3.46
100	6.19	5.79	5.42	4.77	4.62	4.37	4.10	3.85	3.58	3.45
Infinite number.	6.15	5.76	5.38	4.74	4.59	4.35	4.08	3.83	3.56	3.43

TABLE XI.—*Percentage of hits to be expected from good shots with the battle sight on lines of kneeling figures with an interval of 1 yard edge to edge and with center of impact displaced by aiming at lower edge of target.*

Number of targets.	Range (in yards).								
	200	250	300	350	400	450	500	550	600
1	31.29	24.29	19.35	15.39	12.61	9.38	6.69	4.49	2.78
2	28.85	25.48	22.57	19.32	16.50	12.77	9.53	6.54	4.24
3	25.39	22.64	20.34	17.75	15.44	12.16	9.23	6.47	4.28
4	23.95	21.36	19.18	16.74	14.56	11.47	8.71	6.15	4.09
5	23.17	20.66	18.56	16.19	14.09	11.10	8.42	5.95	3.96
6	22.67	20.22	18.16	15.85	13.79	10.86	8.24	5.82	3.87
7	22.33	19.91	17.89	15.61	13.58	10.70	8.12	5.73	3.81
8	22.08	19.69	17.68	15.43	13.42	10.58	8.03	5.67	3.77
9	21.89	19.52	17.53	15.30	13.31	10.49	7.96	5.62	3.74
10	21.74	19.38	17.41	15.19	13.22	10.41	7.90	5.58	3.71
11	21.61	19.28	17.31	15.11	13.14	10.35	7.86	5.55	3.69
12	21.51	19.19	17.23	15.04	13.08	10.31	7.82	5.52	3.67
13	21.43	19.12	17.17	14.98	13.03	10.27	7.79	5.50	3.66
14	21.36	19.05	17.11	14.93	12.99	10.23	7.77	5.48	3.65
15	21.30	19.00	17.06	14.89	12.95	10.21	7.75	5.47	3.64
16	21.25	18.95	17.02	14.85	12.92	10.18	7.73	5.45	3.63
17	21.20	18.91	16.98	14.82	12.89	10.16	7.71	5.44	3.62
18	21.16	18.87	16.95	14.79	12.87	10.14	7.69	5.43	3.61
19	21.12	18.84	16.92	14.77	12.85	10.12	7.68	5.42	3.61
20	21.09	18.81	16.89	14.74	12.83	10.10	7.67	5.42	3.60
21	21.06	18.78	16.87	14.72	12.81	10.09	7.66	5.41	3.60
22	21.03	18.76	16.85	14.70	12.79	10.08	7.65	5.40	3.59
23	21.00	18.73	16.82	14.68	12.77	10.06	7.64	5.39	3.59
24	20.98	18.72	16.81	14.67	12.76	10.05	7.63	5.39	3.58
25	20.96	18.69	16.79	14.65	12.75	10.04	7.62	5.38	3.58
26	20.94	18.68	16.78	14.64	12.74	10.03	7.62	5.38	3.58
27	20.94	18.67	16.77	14.63	12.73	10.03	7.61	5.38	3.58
28	20.91	18.65	16.75	14.62	12.72	10.02	7.60	5.37	3.57
29	20.90	18.64	16.74	14.61	12.71	10.01	7.60	5.37	3.57
30	20.88	18.62	16.72	14.59	12.70	10.00	7.59	5.36	3.57
31	20.86	18.61	16.71	14.58	12.69	10.00	7.59	5.36	3.56
32	20.85	18.60	16.70	14.58	12.68	9.99	7.58	5.35	3.56
33	20.84	18.59	16.69	14.57	12.67	9.98	7.58	5.35	3.56
34	20.83	18.58	16.68	14.56	12.67	9.98	7.57	5.35	3.56
35	20.82	18.57	16.68	14.56	12.66	9.98	7.57	5.35	3.56
36	20.81	18.56	16.67	14.55	12.66	9.97	7.57	5.34	3.55
37	20.80	18.55	16.66	14.54	12.65	9.96	7.56	5.34	3.55
38	20.79	18.54	16.65	14.53	12.64	9.96	7.56	5.34	3.55
39	20.78	18.53	16.65	14.53	12.64	9.96	7.56	5.34	3.55
40	20.77	18.53	16.64	14.52	12.63	9.95	7.55	5.33	3.55
50	20.72	18.48	16.59	14.48	12.60	9.93	7.53	5.32	3.54
60	20.68	18.44	16.56	14.45	12.57	9.91	7.52	5.31	3.53
70	20.64	18.41	16.53	14.43	12.55	9.89	7.51	5.30	3.53
80	20.63	18.40	16.52	14.42	12.54	9.88	7.50	5.30	3.52
90	20.61	18.38	16.51	14.41	12.53	9.87	7.49	5.29	3.52
100	20.59	18.37	16.50	14.40	12.52	9.87	7.49	5.29	3.52
An infinite number	20.47	18.26	16.40	14.31	12.45	9.81	7.44	5.26	3.50

TABLE XII.—*Percentage of hits to be expected from good shots with the battle sight on lines of kneeling figures with an interval of 1 yard edge to edge and with center of impact at center of target.*

Number of targets.	Range (in yards).								
	200	250	300	350	400	450	500	550	600
1	31.90	24.76	19.74	16.45	14.22	12.53	11.01	9.79	8.59
2	29.42	25.96	23.02	20.64	18.61	17.06	15.67	14.27	13.07
3	25.89	23.08	20.74	18.96	17.40	16.25	15.19	14.11	13.20
4	24.42	21.77	19.56	17.89	16.42	15.33	14.33	13.42	12.62
5	23.62	21.06	18.93	17.25	15.88	14.83	13.83	12.98	12.21
6	23.12	20.61	18.52	16.93	15.54	14.51	13.56	12.70	11.95
7	22.77	20.30	18.24	16.68	15.31	14.29	13.36	12.51	11.77
8	22.51	20.07	18.03	16.49	15.13	14.13	13.21	12.37	11.63
9	22.32	19.90	17.88	16.35	15.00	14.01	13.10	12.26	11.54
10	22.16	19.76	17.76	16.23	14.90	13.91	13.00	12.18	11.45
11	22.04	19.65	17.66	16.14	14.81	13.83	12.93	12.11	11.39
12	21.94	19.56	17.58	16.07	14.75	13.77	12.87	12.06	11.34
13	21.85	19.48	17.51	16.01	14.69	13.72	12.82	12.01	11.30
14	21.78	19.42	17.45	15.95	14.64	13.67	12.78	11.97	11.26
15	21.72	19.37	17.40	15.91	14.60	13.63	12.74	11.93	11.23
16	21.66	19.31	17.36	15.87	14.56	13.60	12.71	11.90	11.20
17	21.61	19.27	17.32	15.83	14.53	13.57	12.68	11.87	11.17
18	21.57	19.23	17.28	15.80	14.50	13.54	12.66	11.85	11.15
19	21.54	19.20	17.26	15.78	14.48	13.52	12.90	11.83	11.13
20	21.51	19.17	17.23	15.75	14.46	13.50	12.62	11.81	11.12
21	21.47	19.14	17.20	15.73	14.44	13.48	12.60	11.80	11.10
22	21.45	19.12	17.18	15.71	14.42	13.46	12.58	11.78	11.09
23	21.41	19.09	17.16	15.69	14.40	13.44	12.56	11.76	11.07
24	21.40	19.08	17.14	15.67	14.39	13.43	12.55	11.76	11.06
25	21.37	19.06	17.12	15.66	14.37	13.42	12.54	11.74	11.05
26	21.36	19.04	17.11	15.64	14.36	13.41	12.53	11.73	11.04
27	21.35	19.03	17.10	15.64	14.35	13.40	12.53	11.73	11.03
28	21.32	19.01	17.08	15.62	14.34	13.38	12.51	11.71	11.02
29	21.31	19.00	17.07	15.61	14.32	13.37	12.50	11.71	11.01
30	21.29	18.98	17.06	15.60	14.31	13.36	12.49	11.70	11.00
31	21.27	18.97	17.04	15.58	14.30	13.35	12.48	11.69	11.00
32	21.26	18.96	17.04	15.58	14.30	13.35	12.48	11.68	10.99
33	21.25	18.94	17.02	15.56	14.28	13.34	12.47	11.67	10.98
34	21.24	18.94	17.02	15.56	14.28	13.33	12.46	11.67	10.98
35	21.23	18.93	17.01	15.55	14.27	13.33	12.46	11.66	10.97
36	21.22	18.92	17.00	15.55	14.27	13.32	12.45	11.66	10.97
37	21.21	18.91	16.99	15.53	14.26	13.31	12.44	11.65	10.96
38	21.20	18.90	16.98	15.53	14.25	13.31	12.44	11.65	10.96
39	21.19	18.89	16.98	15.52	14.25	13.30	12.43	11.64	10.95
40	21.18	18.88	16.97	15.52	14.24	13.30	12.43	11.64	10.95
50	21.12	18.83	16.92	15.47	14.20	13.26	12.39	11.61	10.92
60	21.08	18.80	16.89	15.44	14.17	13.23	12.37	11.58	10.90
70	21.05	18.77	16.86	15.42	14.15	13.21	12.35	11.56	10.88
80	21.03	18.75	16.85	15.41	14.14	13.20	12.34	11.56	10.87
90	21.02	18.74	16.84	15.39	14.13	13.19	12.33	11.55	10.86
100	21.00	18.72	16.82	15.38	14.12	13.18	12.32	11.54	10.85
Infinite number	20.87	18.61	16.72	15.29	14.03	13.10	12.25	11.47	10.79

TABLE XIII.—*Percentage of hits to be expected from good shots with the leaf sight on lines of kneeling figures with an interval of 1 yard edge to edge and with center of impact displaced by using exact elevation.*

Number of targets.	Range (in yards).									
	550	600	650	700	750	800	850	900	950	1,000
1	6.40	5.65	4.91	4.19	3.59	3.13	2.62	2.34	1.90	1.61
2	9.32	8.59	7.73	6.89	6.02	5.34	4.60	4.09	3.51	3.01
3	9.22	8.68	8.09	7.42	6.73	6.18	5.49	4.70	4.42	3.89
4	8.77	8.30	7.80	7.24	6.68	6.30	5.64	5.24	4.75	4.28
5	5.48	8.03	7.54	7.00	6.46	6.09	5.58	5.21	4.78	4.37
6	8.30	7.85	7.28	6.85	6.32	5.96	5.46	5.10	4.73	4.37
7	8.17	7.74	7.27	6.75	6.23	5.87	5.38	5.02	4.66	4.31
8	8.08	7.65	7.19	6.67	6.16	5.80	5.32	4.96	4.61	4.26
9	8.01	7.58	7.13	6.61	6.10	5.75	5.27	4.92	4.57	4.22
10	7.96	7.53	7.08	6.57	6.06	5.71	5.23	4.89	4.54	4.19
11	7.91	7.49	7.04	6.53	6.03	5.68	5.20	4.86	4.51	4.17
12	7.88	7.45	7.00	6.50	6.00	5.66	5.18	4.84	4.49	4.15
13	7.85	7.43	6.98	6.48	5.98	5.63	5.16	4.82	4.48	4.13
14	7.82	7.40	6.95	6.46	5.96	5.62	5.14	4.80	4.46	4.12
15	7.80	7.38	6.94	6.44	5.94	5.60	5.13	4.79	4.45	4.11
16	7.78	7.36	6.92	6.42	5.92	5.59	5.12	4.78	4.44	4.10
17	7.76	7.34	6.90	6.41	5.91	5.57	5.10	4.77	4.43	4.09
18	7.75	7.33	6.89	6.39	5.90	5.56	5.09	4.76	4.42	4.08
19	7.73	7.32	6.88	6.38	5.89	5.55	5.09	4.75	4.41	4.07
20	7.72	7.31	6.87	6.37	5.88	5.54	5.08	4.74	4.40	4.07
21	7.71	7.30	6.86	6.36	5.87	5.54	5.07	4.73	4.40	4.06
22	7.70	7.29	6.85	6.36	5.87	5.53	5.06	4.73	4.39	4.06
23	7.69	7.28	6.84	6.35	5.86	5.52	5.06	4.72	4.39	4.05
24	7.68	7.27	6.83	6.34	5.85	5.52	5.05	4.72	4.38	4.05
25	7.67	7.26	6.82	6.33	5.85	5.51	5.05	4.71	4.38	4.04
26	7.67	7.26	6.82	6.33	5.84	5.51	5.04	4.71	4.37	4.04
27	7.66	7.25	6.82	6.33	5.84	5.50	5.04	4.71	4.37	4.04
28	7.66	7.24	6.81	6.32	5.83	5.49	5.04	4.70	4.37	4.03
29	7.65	7.24	6.80	6.31	5.83	5.49	5.03	4.70	4.36	4.03
30	7.64	7.23	6.80	6.31	5.82	5.49	5.03	4.69	4.36	4.03
31	7.64	7.23	6.79	6.30	5.82	5.48	5.02	4.69	4.36	4.02
32	7.63	7.22	6.79	6.30	5.82	5.48	5.02	4.69	4.36	4.02
33	7.63	7.22	6.78	6.30	5.81	5.48	5.02	4.68	4.35	4.02
34	7.63	7.22	6.78	6.30	5.81	5.48	5.02	4.68	4.35	4.02
35	7.62	7.21	6.78	6.29	5.81	5.47	5.01	4.68	4.35	4.02
36	7.62	7.21	6.78	6.29	5.80	5.47	5.01	4.68	4.35	4.01
37	7.61	7.21	6.77	6.29	5.80	5.47	5.01	4.68	4.34	4.01
38	7.61	7.20	6.77	6.28	5.80	5.47	5.01	4.67	4.34	4.01
39	7.61	7.20	6.77	6.28	5.80	5.46	5.00	4.67	4.34	4.01
40	7.60	7.20	6.76	6.28	5.79	5.46	5.00	4.67	4.34	4.01
50	7.58	7.18	6.74	6.26	5.78	5.45	4.99	4.66	4.33	4.00
60	7.57	7.16	6.73	6.25	5.77	5.44	4.98	4.65	4.32	3.99
70	7.56	7.15	6.72	6.24	5.76	5.43	4.97	4.64	4.31	3.98
80	7.55	7.15	6.72	6.23	5.75	5.42	4.97	4.64	4.31	3.98
90	7.55	7.14	6.71	6.23	5.75	5.42	4.96	4.63	4.30	3.98
100	7.54	7.13	6.70	6.22	5.74	5.41	4.96	4.63	4.30	3.97
Infinite number.	7.49	7.09	6.66	6.19	5.71	5.38	4.93	4.60	4.28	3.95

TABLE XIV.—*Percentage of hits to be expected from good shots with the leaf sight on lines of kneeling figures with an interval of 1 yard edge to edge and with center of impact at center of target.*

Number of targets.	Range (in yards).									
	550	600	650	700	750	800	850	900	950	1,000
1	9.79	8.59	7.43	6.42	5.60	4.89	4.18	3.68	3.06	2.70
2	14.27	13.07	11.69	10.51	9.40	8.33	7.34	6.43	5.65	5.05
3	14.11	13.20	12.24	11.37	10.49	9.65	8.77	7.39	7.12	6.52
4	13.42	12.62	11.80	11.09	10.41	9.71	9.01	8.25	7.66	7.17
5	12.98	12.21	11.41	10.73	10.07	9.51	8.91	8.20	7.70	7.33
6	12.70	11.95	11.17	10.50	9.86	9.30	8.72	8.02	7.63	7.32
7	12.51	11.77	11.00	10.34	9.71	9.16	8.59	7.90	7.52	7.21
8	12.37	11.63	10.88	10.22	9.60	9.06	8.49	7.81	7.43	7.13
9	12.26	11.54	10.78	10.14	9.52	8.98	8.42	7.74	7.37	7.07
10	12.18	11.45	10.71	10.07	9.45	8.92	8.36	7.69	7.32	7.02
11	12.11	11.39	10.65	10.01	9.40	8.87	8.31	7.65	7.27	6.98
12	12.05	11.34	10.60	9.96	9.36	8.83	8.27	7.61	7.24	6.95
13	12.01	11.30	10.56	9.93	9.32	8.79	8.24	7.58	7.21	6.92
14	11.97	11.26	10.52	9.89	9.29	8.76	8.21	7.56	7.19	6.90
15	11.93	11.23	10.49	9.87	9.26	8.74	8.19	7.54	7.17	6.88
16	11.90	11.20	10.47	9.84	9.24	8.72	8.17	7.52	7.15	6.86
17	11.87	11.17	10.44	9.82	9.22	8.70	8.15	7.50	7.13	6.85
18	11.85	11.15	10.42	9.80	9.20	8.68	8.13	7.49	7.12	6.84
19	11.83	11.13	10.41	9.78	9.19	8.67	8.12	7.47	7.11	6.82
20	11.81	11.12	10.39	9.77	9.17	8.65	8.11	7.46	7.10	6.81
21	11.80	11.10	10.37	9.75	9.16	8.64	8.10	7.45	7.09	6.80
22	11.78	11.09	10.36	9.74	9.15	8.63	8.09	7.44	7.08	6.80
23	11.76	11.07	10.35	9.73	9.13	8.62	8.08	7.43	7.07	6.79
24	11.76	11.06	10.34	9.72	9.13	8.61	8.07	7.42	7.06	6.78
25	11.74	11.05	10.33	9.71	9.12	8.60	8.06	7.42	7.06	6.77
26	11.73	11.04	10.32	9.70	9.11	8.59	8.05	7.41	7.05	6.77
27	11.73	11.03	10.31	9.70	9.09	8.59	8.05	7.41	7.05	6.76
28	11.71	11.02	10.30	9.69	9.09	8.58	8.04	7.40	7.04	6.76
29	11.71	11.01	10.29	9.68	9.09	8.57	8.03	7.39	7.03	6.75
30	11.70	11.00	10.29	9.67	9.08	8.57	8.03	7.39	7.03	6.75
31	11.69	11.00	10.28	9.66	9.07	8.56	8.02	7.38	7.02	6.74
32	11.68	10.99	10.27	9.66	9.07	8.56	8.02	7.38	7.02	6.74
33	11.67	10.98	10.27	9.65	9.06	8.55	8.01	7.37	7.01	6.73
34	11.67	10.98	10.26	9.65	9.06	8.55	8.01	7.37	7.01	6.73
35	11.66	10.97	10.26	9.64	9.06	8.54	8.01	7.37	7.01	6.73
36	11.66	10.97	10.25	9.64	9.05	8.54	8.00	7.36	7.01	6.72
37	11.65	10.96	10.25	9.63	9.04	8.53	8.00	7.36	7.00	6.72
38	11.65	10.96	10.24	9.63	9.04	8.53	7.99	7.36	7.00	6.72
39	11.64	10.95	10.24	9.62	9.04	8.53	7.99	7.35	7.00	6.71
40	11.64	10.95	10.23	9.62	9.03	8.52	7.98	7.35	6.99	6.71
50	11.61	10.92	10.21	9.59	9.01	8.50	7.97	7.33	6.97	6.69
60	11.58	10.90	10.19	9.58	8.99	8.48	7.95	7.32	6.96	6.68
70	11.56	10.88	10.17	9.56	8.98	8.47	7.94	7.30	6.95	6.67
80	11.56	10.87	10.16	9.55	8.97	8.46	7.93	7.30	6.94	6.66
90	11.55	10.86	10.15	9.55	8.96	8.46	7.93	7.29	6.94	6.66
100	11.54	10.85	10.15	9.54	8.96	8.45	7.92	7.29	6.93	6.65
Infinite number	11.47	10.79	10.09	9.48	8.90	8.40	7.87	7.24	6.89	6.61

TABLE XV.—*Percentage of hits to be expected from average shots with the battle sight on lines of prone figures with an interval of 1 yard edge to edge and with center of impact misplaced by aiming at the bottom of the figure.*

Number of targets.	Range (in yards).								
	200	250	300	350	400	450	500	550	600
1	15.09	11.21	8.73	7.19	5.98	4.87	3.79	2.79	1.92
2	15.14	12.77	10.95	9.66	8.44	7.08	5.66	4.28	3.08
3	13.32	11.46	10.05	9.10	8.15	6.98	5.67	4.40	3.26
4	12.57	10.81	9.48	8.58	7.69	6.59	5.40	4.22	3.15
5	12.16	10.45	9.17	8.30	7.43	6.37	5.23	4.08	3.05
6	11.90	10.27	8.97	8.12	7.28	6.24	5.11	3.99	2.98
7	11.72	10.08	8.84	8.00	7.17	6.14	5.04	3.93	2.94
8	11.58	9.95	8.73	7.90	7.08	6.07	4.98	3.89	2.90
9	11.49	9.88	8.66	7.84	7.03	6.02	4.94	3.86	2.88
10	11.41	9.81	8.60	7.79	6.97	5.98	4.90	3.83	2.86
11	11.34	9.75	8.55	7.75	6.94	5.95	4.88	3.81	2.84
12	11.29	9.71	8.51	7.71	6.91	5.92	4.85	3.79	2.83
13	11.24	9.66	8.48	7.67	6.87	5.89	4.83	3.77	2.82
14	11.21	9.64	8.45	7.65	6.85	5.88	4.82	3.76	2.81
15	11.18	9.61	8.43	7.63	6.84	5.86	4.81	3.75	2.80
16	11.15	9.59	8.41	7.61	6.82	5.84	4.79	3.74	2.79
17	11.13	9.57	8.39	7.60	6.80	5.83	4.78	3.73	2.79
18	11.11	9.55	8.37	7.58	6.79	5.82	4.77	3.73	2.78
19	11.08	9.53	8.36	7.57	6.78	5.81	4.76	3.72	2.78
20	11.07	9.51	8.34	7.56	6.77	5.80	4.76	3.71	2.77
21	11.05	9.50	8.33	7.54	6.76	5.79	4.75	3.71	2.77
22	11.04	9.49	8.32	7.53	6.75	5.78	4.74	3.70	2.77
23	11.02	9.48	8.31	7.53	6.74	5.78	4.74	3.70	2.76
24	11.01	9.47	8.30	7.52	6.73	5.77	4.73	3.70	2.76
25	11.00	9.46	8.30	7.51	6.73	5.77	4.73	3.69	2.76
26	10.99	9.45	8.29	7.51	6.72	5.76	4.73	3.69	2.75
27	10.98	9.44	8.28	7.50	6.71	5.75	4.72	3.69	2.75
28	10.97	9.43	8.27	7.49	6.71	5.75	4.72	3.68	2.75
29	10.97	9.43	8.27	7.49	6.71	5.75	4.71	3.68	2.75
30	10.96	9.42	8.26	7.48	6.70	5.74	4.71	3.68	2.75
31	10.95	9.42	8.26	7.48	6.70	5.74	4.71	3.68	2.74
32	10.94	9.41	8.25	7.47	6.69	5.74	4.70	3.67	2.74
33	10.94	9.41	8.25	7.47	6.69	5.73	4.70	3.67	2.74
34	10.93	9.40	8.25	7.47	6.69	5.73	4.70	3.67	2.74
35	10.93	9.39	8.24	7.46	6.68	5.73	4.70	3.67	2.74
36	10.92	9.39	8.24	7.46	6.68	5.73	4.70	3.67	2.74
37	10.92	9.39	8.23	7.45	6.68	5.72	4.69	3.66	2.74
38	10.91	9.38	8.23	7.45	6.67	5.72	4.69	3.66	2.73
39	10.91	9.38	8.23	7.45	6.67	5.72	4.69	3.66	2.73
40	10.91	9.38	8.22	7.45	6.67	5.72	4.69	3.66	2.73
50	10.87	9.35	8.20	7.42	6.65	5.70	4.67	3.65	2.72
60	10.85	9.33	8.18	7.41	6.64	5.69	4.67	3.64	2.72
70	10.84	9.32	8.17	7.40	6.63	5.68	4.66	3.64	2.72
80	10.83	9.31	8.16	7.39	6.62	5.67	4.65	3.63	2.71
90	10.82	9.30	8.16	7.39	6.62	5.67	4.65	3.63	2.71
100	10.81	9.29	8.15	7.38	6.61	5.67	4.65	3.63	2.71
Infinite number	10.74	9.24	8.10	7.34	6.57	5.63	4.62	3.61	2.69

TABLE XVI.—*Percentage of hits to be expected from average shots with battle sight on lines of prone figures with an interval of 1 yard edge to edge and with center of impact at center of target.*

Number of targets.	Range (in yards).								
	200	250	300	350	400	450	500	550	600
1	15.82	11.45	8.89	7.19	6.05	5.22	4.62	4.10	3.47
2	15.87	13.04	11.15	9.66	8.53	7.58	6.90	6.31	5.56
3	13.97	11.70	10.23	9.10	8.24	7.47	6.91	6.48	5.88
4	13.18	11.04	9.65	8.58	7.77	7.05	6.59	6.21	5.69
5	12.75	10.68	9.34	8.30	7.51	6.82	6.37	6.01	5.51
6	12.47	10.45	9.13	8.12	7.36	6.67	6.24	5.88	5.39
7	12.28	10.29	9.00	8.00	7.25	6.57	6.14	5.79	5.31
8	12.13	10.17	8.89	7.90	7.16	6.49	6.07	5.72	5.24
9	12.04	10.09	8.82	7.84	7.10	6.44	6.02	5.68	5.20
10	11.96	10.02	8.76	7.79	7.05	6.40	5.98	5.64	5.17
11	11.89	9.96	8.71	7.75	7.02	6.36	5.95	5.61	5.14
12	11.84	9.92	8.67	7.71	6.98	6.33	5.92	5.58	5.11
13	11.78	9.87	8.63	7.67	6.95	6.30	5.89	5.56	5.09
14	11.75	9.84	8.61	7.65	6.93	6.29	5.88	5.54	5.08
15	11.72	9.82	8.58	7.63	6.91	6.27	5.86	5.53	5.06
16	11.69	9.79	8.56	7.61	6.89	6.25	5.84	5.51	5.05
17	11.66	9.77	8.54	7.60	6.88	6.24	5.83	5.50	5.04
18	11.64	9.75	8.53	7.58	6.87	6.23	5.82	5.49	5.03
19	11.62	9.73	8.51	7.57	6.85	6.22	5.81	5.48	5.02
20	11.60	9.72	8.50	7.56	6.84	6.22	5.80	5.47	5.01
21	11.58	9.70	8.48	7.54	6.83	6.22	5.79	5.46	5.00
22	11.57	9.69	8.47	7.53	6.82	6.19	5.78	5.45	5.00
23	11.56	9.68	8.46	7.53	6.82	6.18	5.78	5.45	4.99
24	11.54	9.67	8.45	7.52	6.81	6.18	5.77	5.44	4.99
25	11.53	9.66	8.45	7.51	6.80	6.17	5.77	5.44	4.98
26	11.52	9.65	8.44	7.51	6.80	6.17	5.76	5.43	4.98
27	11.51	9.64	8.43	7.50	6.79	6.16	5.75	5.43	4.97
28	11.50	9.63	8.42	7.49	6.78	6.15	5.75	5.42	4.97
29	11.50	9.63	8.42	7.49	6.78	6.15	5.75	5.42	4.97
30	11.49	9.62	8.41	7.48	6.78	6.15	5.74	5.42	4.96
31	11.48	9.62	8.41	7.48	6.77	6.14	5.74	5.41	4.96
32	11.47	9.61	8.40	7.47	6.77	6.14	5.74	5.41	4.96
33	11.47	9.61	8.40	7.47	6.77	6.14	5.73	5.41	4.95
34	11.46	9.60	8.40	7.47	6.76	6.13	5.73	5.41	4.95
35	11.45	9.60	8.39	7.46	6.76	6.13	5.73	5.40	4.95
36	11.45	9.59	8.39	7.46	6.75	6.13	5.73	5.40	4.95
37	11.45	9.59	8.38	7.45	6.75	6.12	5.72	5.40	4.94
38	11.44	9.58	8.38	7.45	6.75	6.12	5.72	5.39	4.94
39	11.44	9.58	8.38	7.45	6.75	6.12	5.72	5.39	4.94
40	11.43	9.58	8.37	7.45	6.74	6.12	5.72	5.39	4.94
50	11.40	9.55	8.35	7.42	6.72	6.10	5.70	5.37	4.92
60	11.38	9.53	8.33	7.41	6.71	6.09	5.69	5.36	4.92
70	11.36	9.52	8.32	7.40	6.70	6.08	5.68	5.36	4.91
80	11.35	9.51	8.31	7.39	6.70	6.07	5.67	5.35	4.90
90	11.34	9.50	8.31	7.39	6.69	6.07	5.67	5.35	4.90
100	11.33	9.49	8.30	7.38	6.68	6.06	5.67	5.34	4.90
Infinite number	11.26	9.44	8.25	7.34	6.64	6.03	5.63	5.31	4.87

TABLE XVII.—*Percentage of hits to be expected from average shots with the leaf sight on lines of prone figures with an interval of 1 yard edge to edge and with center of impact misplaced by using exact elevation.*

Number of targets.	Range (in yards).									
	550	600	650	700	750	800	850	900	950	1,000
1	3.45	2.96	2.55	2.20	1.88	1.58	1.34	1.12	0.98	0.81
2	5.31	4.74	4.18	3.69	3.26	2.80	2.41	2.10	1.80	1.53
3	5.46	5.02	4.57	4.16	3.78	3.36	2.98	2.65	2.33	2.03
4	5.23	4.86	4.48	4.16	3.82	3.47	3.15	2.86	2.66	2.30
5	5.06	4.70	4.33	4.02	3.75	3.44	3.16	2.89	2.65	2.40
6	4.95	4.59	4.24	3.94	3.66	3.36	3.09	2.87	2.65	2.41
7	4.88	4.53	4.18	3.88	3.61	3.31	3.04	2.83	2.61	2.40
8	4.82	4.47	4.12	3.83	3.57	3.27	3.01	2.79	2.58	2.37
9	4.78	4.44	4.09	3.80	3.54	3.25	2.98	2.77	2.56	2.35
10	4.75	4.40	4.06	3.78	3.51	3.23	2.96	2.75	2.54	2.33
11	4.72	4.38	4.04	3.76	3.49	3.21	2.95	2.74	2.53	2.32
12	4.70	4.36	4.02	3.74	3.48	3.19	2.93	2.73	2.52	2.31
13	4.68	4.34	4.01	3.72	3.46	3.18	2.92	2.71	2.51	2.30
14	4.66	4.33	3.99	3.71	3.45	3.17	2.91	2.71	2.50	2.29
15	4.65	4.32	3.98	3.70	3.44	3.16	2.90	2.70	2.49	2.29
16	4.64	4.31	3.97	3.69	3.43	3.15	2.90	2.69	2.49	2.28
17	4.63	4.30	3.96	3.68	3.43	3.15	2.89	2.69	2.48	2.28
18	4.62	4.29	3.96	3.68	3.42	3.14	2.88	2.68	2.48	2.27
19	4.61	4.28	3.95	3.67	3.41	3.13	2.88	2.68	2.47	2.27
20	4.60	4.27	3.94	3.66	3.41	3.13	2.87	2.67	2.47	2.26
21	4.60	4.27	3.94	3.66	3.40	3.12	2.87	2.67	2.46	2.26
22	4.59	4.26	3.93	3.65	3.40	3.12	2.87	2.66	2.46	2.26
23	4.59	4.26	3.93	3.65	3.40	3.12	2.86	2.66	2.46	2.26
24	4.58	4.25	3.92	3.64	3.39	3.11	2.86	2.66	2.46	2.25
25	4.58	4.25	3.92	3.64	3.39	3.11	2.86	2.66	2.45	2.25
26	4.57	4.25	3.92	3.64	3.39	3.11	2.86	2.65	2.45	2.25
27	4.57	4.24	3.91	3.63	3.38	3.10	2.85	2.65	2.45	2.25
28	4.56	4.24	3.91	3.63	3.38	3.10	2.85	2.65	2.45	2.24
29	4.56	4.24	3.91	3.63	3.38	3.10	2.85	2.65	2.45	2.24
30	4.56	4.23	3.90	3.63	3.38	3.10	2.85	2.64	2.44	2.24
31	4.56	4.23	3.90	3.63	3.37	3.10	2.85	2.64	2.44	2.24
32	4.55	4.23	3.90	3.62	3.37	3.09	2.84	2.64	2.44	2.24
33	4.55	4.23	3.90	3.62	3.37	3.09	2.84	2.64	2.44	2.24
34	4.55	4.22	3.90	3.62	3.37	3.09	2.84	2.64	2.44	2.24
35	4.55	4.22	3.89	3.62	3.37	3.09	2.84	2.64	2.44	2.24
36	4.54	4.22	3.89	3.62	3.36	3.09	2.84	2.64	2.44	2.23
37	4.54	4.22	3.89	3.61	3.36	3.09	2.84	2.64	2.43	2.23
38	4.54	4.22	3.89	3.61	3.36	3.09	2.84	2.63	2.43	2.23
39	4.54	4.21	3.89	3.61	3.36	3.08	2.83	2.63	2.43	2.23
40	4.54	4.21	3.89	3.61	3.36	3.08	2.83	2.63	2.43	2.23
50	4.52	4.20	3.87	3.60	3.35	3.07	2.82	2.62	2.42	2.22
60	4.52	4.19	3.87	3.59	3.34	3.07	2.82	2.62	2.42	2.22
70	4.51	4.18	3.86	3.59	3.34	3.06	2.81	2.62	2.42	2.22
80	4.51	4.18	3.86	3.58	3.34	3.06	2.81	2.61	2.41	2.22
90	4.50	4.18	3.85	3.58	3.33	3.06	2.81	2.61	2.41	2.21
100	4.50	4.17	3.85	3.58	3.33	3.06	2.81	2.61	2.41	2.21
Infinite number.	4.47	4.15	3.83	3.56	3.31	3.04	2.79	2.59	2.40	2.20

TABLE XVIII.—*Percentage of hits to be expected from average shots with the leaf sight on lines of prone figures with an interval of 1 yard edge to edge and with center of impact at center of target.*

Number of targets.	Range (in yards).									
	550	600	650	700	750	800	850	900	950	1,000
1	4.10	3.47	3.06	2.61	2.24	1.93	1.65	1.43	1.30	1.08
2	6.31	5.56	5.02	4.39	3.89	3.42	2.96	2.68	2.40	2.03
3	6.48	5.88	5.48	4.94	4.52	4.10	3.66	3.39	3.10	2.70
4	6.21	5.69	5.38	4.94	4.56	4.24	3.87	3.65	3.44	3.06
5	6.01	5.51	5.20	4.78	4.47	4.19	3.89	3.69	3.52	3.18
6	5.88	5.39	5.09	4.68	4.38	4.10	3.80	3.66	3.53	3.19
7	5.79	5.31	5.01	4.61	4.31	4.04	3.74	3.61	3.48	3.18
8	5.72	5.24	4.95	4.55	4.26	3.99	3.70	3.57	3.43	3.14
9	5.68	5.20	4.91	4.52	4.23	3.96	3.67	3.54	3.41	3.12
10	5.64	5.17	4.88	4.48	4.20	3.93	3.64	3.51	3.38	3.09
11	5.61	5.14	4.85	4.46	4.17	3.91	3.63	3.49	3.36	3.08
12	5.58	5.11	4.83	4.44	4.15	3.89	3.61	3.48	3.35	3.06
13	5.56	5.09	4.81	4.42	4.13	3.88	3.59	3.46	3.33	3.05
14	5.54	5.08	4.79	4.41	4.12	3.87	3.58	3.45	3.32	3.04
15	5.53	5.06	4.78	4.39	4.11	3.86	3.57	3.44	3.32	3.03
16	5.51	5.05	4.77	4.38	4.10	3.84	3.56	3.43	3.31	3.02
17	5.50	5.04	4.76	4.37	4.09	3.84	3.56	3.43	3.30	3.02
18	5.49	5.03	4.75	4.37	4.08	3.83	3.55	3.42	3.29	3.01
19	5.48	5.02	4.74	4.36	4.08	3.82	3.54	3.41	3.29	3.01
20	5.47	5.01	4.73	4.35	4.07	3.82	3.54	3.41	3.28	3.00
21	5.46	5.00	4.72	4.34	4.06	3.81	3.53	3.40	3.28	3.00
22	5.45	5.00	4.72	4.34	4.06	3.81	3.53	3.40	3.27	2.99
23	5.45	4.99	4.71	4.33	4.05	3.80	3.52	3.40	3.27	2.99
24	5.44	4.99	4.71	4.33	4.05	3.80	3.52	3.39	3.26	2.99
25	5.44	4.98	4.70	4.32	4.05	3.79	3.52	3.39	3.26	2.98
26	5.43	4.98	4.70	4.32	4.04	3.79	3.51	3.39	3.26	2.98
27	5.43	4.97	4.69	4.32	4.04	3.79	3.51	3.38	3.26	2.98
28	5.42	4.97	4.69	4.31	4.04	3.78	3.51	3.38	3.25	2.98
29	5.42	4.97	4.69	4.31	4.03	3.78	3.50	3.38	3.25	2.97
30	5.42	4.96	4.69	4.31	4.03	3.78	3.50	3.38	3.25	2.97
31	5.41	4.96	4.68	4.31	4.03	3.78	3.50	3.37	3.25	2.97
32	5.41	4.96	4.68	4.30	4.03	3.77	3.50	3.37	3.25	2.97
33	5.41	4.95	4.68	4.30	4.02	3.77	3.50	3.37	3.24	2.97
34	5.41	4.95	4.68	4.30	4.02	3.77	3.49	3.37	3.24	2.97
35	5.40	4.95	4.67	4.30	4.02	3.77	3.49	3.37	3.24	2.96
36	5.40	4.95	4.67	4.29	4.02	3.77	3.49	3.36	3.24	2.96
37	5.40	4.94	4.67	4.29	4.02	3.77	3.49	3.36	3.24	2.96
38	5.39	4.94	4.67	4.29	4.01	3.76	3.49	3.36	3.24	2.96
39	5.39	4.94	4.66	4.29	4.01	3.76	3.49	3.36	3.24	2.96
40	5.39	4.94	4.66	4.29	4.01	3.76	3.48	3.36	3.23	2.96
50	5.37	4.92	4.65	4.27	4.00	3.75	3.47	3.35	3.22	2.95
60	5.36	4.92	4.64	4.27	3.99	3.74	3.47	3.34	3.22	2.94
70	5.36	4.91	4.63	4.26	3.99	3.74	3.46	3.34	3.21	2.94
80	5.35	4.90	4.63	4.26	3.98	3.73	3.46	3.34	3.21	2.94
90	5.35	4.90	4.63	4.25	3.98	3.73	3.46	3.33	3.21	2.93
100	5.34	4.90	4.62	4.25	3.98	3.73	3.45	3.33	3.21	2.93
Infinite number.	5.31	4.87	4.59	4.22	3.95	3.71	3.43	3.31	3.19	2.91

TABLE XIX.—*Percentage of hits to be expected from average shots with the battle sight on lines of kneeling figures with an interval of 1 yard edge to edge and with center of impact misplaced by aiming at lower edge of target.*

Number of targets.	Range (in yards).								
	200	250	300	350	400	450	500	550	600
1	26.28	19.90	15.72	12.49	10.19	7.90	5.96	4.29	2.90
2	26.37	22.66	19.71	16.78	14.36	11.47	8.90	6.60	4.66
3	23.21	20.34	18.09	15.81	13.88	11.32	8.92	6.78	4.93
4	21.89	19.18	17.06	14.92	13.09	10.68	8.50	6.50	4.77
5	21.17	18.56	16.51	14.43	12.66	10.33	8.22	6.29	4.61
6	20.72	18.16	16.15	14.12	12.39	10.11	8.05	6.15	4.51
7	20.41	17.88	15.91	13.91	12.21	9.96	7.93	6.06	4.44
8	20.18	17.68	15.73	13.75	12.07	9.84	7.84	5.99	4.39
9	20.01	17.53	15.60	13.63	11.97	9.76	7.77	5.94	4.36
10	19.86	17.41	15.49	13.54	11.88	9.69	7.72	5.90	4.33
11	19.75	17.31	15.40	13.46	11.81	9.64	7.67	5.87	4.30
12	19.66	17.23	15.33	13.40	11.76	9.59	7.64	5.84	4.28
13	19.59	17.17	15.27	13.35	11.72	9.56	7.61	5.82	4.27
14	19.52	17.11	15.22	13.30	11.68	9.53	7.58	5.80	4.25
15	19.47	17.06	15.18	13.27	11.65	9.50	7.56	5.78	4.24
16	19.42	17.02	15.14	13.23	11.61	9.47	7.54	5.77	4.23
17	19.37	16.98	15.10	13.20	11.59	9.45	7.53	5.75	4.22
18	19.34	16.95	15.07	13.18	11.57	9.43	7.51	5.74	4.21
19	19.31	16.92	15.05	13.16	11.55	9.42	7.50	5.73	4.20
20	19.28	16.89	15.03	13.14	11.53	9.41	7.49	5.73	4.20
21	19.25	16.87	15.00	13.12	11.51	9.39	7.48	5.72	4.19
22	19.22	16.85	14.99	13.10	11.50	9.38	7.47	5.71	4.19
23	19.20	16.82	14.96	13.08	11.48	9.37	7.46	5.70	4.18
24	19.18	16.81	14.95	13.07	11.47	9.36	7.45	5.70	4.18
25	19.16	16.79	14.94	13.06	11.46	9.35	7.44	5.69	4.17
26	19.14	16.78	14.92	13.05	11.45	9.34	7.44	5.69	4.17
27	19.14	16.77	14.92	13.05	11.45	9.34	7.43	5.68	4.17
28	19.11	16.75	14.90	13.02	11.43	9.33	7.42	5.68	4.16
29	19.10	16.74	14.89	13.01	11.42	9.32	7.42	5.67	4.16
30	19.08	16.72	14.88	13.00	11.41	9.31	7.41	5.67	4.16
31	19.07	16.71	14.87	12.99	11.41	9.30	7.41	5.66	4.15
32	19.06	16.70	14.86	12.99	11.40	9.30	7.40	5.66	4.15
33	19.05	16.69	14.85	12.98	11.39	9.29	7.40	5.66	4.15
34	19.04	16.68	14.84	12.97	11.39	9.29	7.40	5.66	4.15
35	19.03	16.68	14.84	12.97	11.38	9.29	7.39	5.65	4.14
36	19.02	16.67	14.83	12.96	11.38	9.28	7.39	5.65	4.14
37	19.01	16.66	14.82	12.95	11.37	9.27	7.38	5.65	4.14
38	19.00	16.65	14.81	12.95	11.37	9.27	7.38	5.64	4.14
39	18.99	16.65	14.81	12.94	11.36	9.27	7.38	5.64	4.14
40	18.99	16.64	14.80	12.94	11.36	9.26	7.38	5.64	4.13
50	18.93	16.59	14.76	12.90	11.33	9.24	7.36	5.62	4.12
60	18.90	16.56	14.73	12.88	11.30	9.22	7.34	5.61	4.11
70	18.87	16.53	14.71	12.86	11.29	9.21	7.33	5.60	4.11
80	18.85	16.52	14.70	12.85	11.28	9.20	7.32	5.60	4.11
90	18.84	16.51	14.69	12.84	11.27	9.19	7.32	5.60	4.10
100	18.82	16.50	14.67	12.83	11.26	9.18	7.31	5.59	4.10
Infinite number.	18.71	16.40	14.59	12.75	11.19	9.13	7.27	5.56	4.07

TABLE XX.—*Percentage of hits to be expected from average shots with the battle sight on lines of kneeling figures with an interval of 1 yard edge to edge and with center of impact at center of target.*

Number of targets.	Range (in yards).								
	200	250	300	350	400	450	500	550	600
1	26.63	20.21	15.97	13.16	11.16	9.82	8.75	7.69	6.63
2	26.72	23.02	20.02	17.68	15.72	14.26	13.06	11.83	10.63
3	23.52	20.65	18.37	16.66	15.19	14.07	13.09	12.15	11.25
4	22.18	19.48	17.33	15.71	14.33	13.27	12.47	11.65	10.89
5	21.46	18.84	16.76	15.20	13.86	12.84	12.07	11.27	10.53
6	21.00	18.44	16.40	14.87	13.56	12.56	11.81	11.03	10.30
7	20.68	18.16	16.16	14.65	13.36	12.37	11.63	10.86	10.15
8	20.45	17.95	15.97	14.48	13.21	12.23	11.50	10.74	10.03
9	20.28	17.80	15.84	14.36	13.10	12.13	11.40	10.65	9.95
10	20.13	17.68	15.72	14.26	13.00	12.04	11.32	10.57	9.88
11	20.02	17.58	15.64	14.18	12.93	11.97	11.26	10.51	9.82
12	19.93	17.50	15.57	14.11	12.87	11.92	11.21	10.47	9.78
13	19.85	17.43	15.51	14.06	12.82	11.87	11.16	10.43	9.74
14	19.78	17.37	15.46	14.01	12.78	11.83	11.13	10.39	9.71
15	19.73	17.32	15.41	13.97	12.74	11.80	11.10	10.36	9.68
16	19.68	17.28	15.37	13.94	12.71	11.77	11.07	10.33	9.66
17	19.63	17.24	15.34	13.91	12.68	11.74	11.04	10.31	9.63
18	19.60	17.21	15.31	13.88	12.66	11.72	11.02	10.29	9.62
19	19.57	17.18	15.28	13.86	12.64	11.70	11.00	10.28	9.60
20	19.54	17.15	15.26	13.84	12.62	11.69	10.99	10.26	9.59
21	19.51	17.13	15.24	13.81	12.60	11.67	10.97	10.24	9.57
22	19.48	17.11	15.22	13.80	12.58	11.65	10.96	10.23	9.56
23	19.45	17.08	15.20	13.78	12.56	11.64	10.94	10.22	9.55
24	19.44	17.07	15.18	13.77	12.55	11.63	10.93	10.21	9.54
25	19.42	17.05	15.17	13.75	12.54	11.61	10.92	10.20	9.53
26	19.40	17.03	15.15	13.74	12.53	11.60	10.91	10.19	9.52
27	19.39	17.03	15.15	13.73	12.53	11.60	10.91	10.19	9.52
28	19.37	17.01	15.13	13.72	12.51	11.59	10.89	10.17	9.51
29	19.36	16.99	15.12	13.71	12.50	11.58	10.88	10.17	9.50
30	19.34	16.98	15.11	13.70	12.49	11.57	10.88	10.16	9.49
31	19.33	16.97	15.10	13.69	12.48	11.56	10.87	10.15	9.48
32	19.32	16.96	15.09	13.68	12.48	11.55	10.86	10.15	9.48
33	19.30	16.95	15.08	13.67	12.47	11.55	10.85	10.14	9.47
34	19.29	16.94	15.07	13.67	12.46	11.54	10.85	10.13	9.47
35	19.29	16.93	15.07	13.66	12.46	11.54	10.85	10.13	9.46
36	19.28	16.93	15.06	13.65	12.45	11.53	10.84	10.13	9.46
37	19.26	16.91	15.05	13.64	12.44	11.52	10.83	10.12	9.45
38	19.26	16.91	15.04	13.64	12.44	11.52	10.83	10.11	9.45
39	19.25	16.90	15.04	13.63	12.43	11.51	10.82	10.11	9.45
40	19.24	16.89	15.03	13.63	12.43	11.51	10.82	10.11	9.44
50	19.19	16.85	14.99	13.59	12.39	11.48	10.79	10.08	9.42
60	19.15	16.81	14.96	13.56	12.37	11.46	10.77	10.06	9.40
70	19.12	16.79	14.94	13.54	12.35	11.44	10.75	10.04	9.38
80	19.11	16.78	14.93	13.53	12.34	11.43	10.74	10.03	9.38
90	19.09	16.76	14.91	13.52	12.33	11.42	10.74	10.03	9.37
100	19.07	16.75	14.90	13.51	12.32	11.41	10.73	10.02	9.36
Infinite number	18.96	16.65	14.81	13.43	12.25	11.34	10.66	9.96	9.31

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